WORLD HEALTH

THE MAGAZINE OF THE WORLD HEALTH ORGANIZATION · JULY-AUGUST 1991

Eat wisely . . . Live well!

HEALTHY NUTRITION

a global challenge

by Hiroshi Nakajima

Director-General of the World Health Organization

Freedom from hunger and malnutrition, essential to the enjoyment of the highest attainable standard of health, is among the fundamental rights of every human being. What is more, there can be no sound social and economic development without adequate food and nutrition. This is the message I hear over and over again from world leaders as they strive to meet the needs of their people.

This is not the same as saying that people in rich countries necessarily have a better chance of being properly nourished than do people in poorer countries. As readers will discover throughout this issue of *World Health*, there is much more to achieving healthy nutritional status than can be conveyed by such simplistic labels as "developed" and "developing" where countries and people are concerned.

By nutritional status we mean a characteristic common to us all that can be measured and monitored through a combination of charts, scales, rulers and—sometimes—laboratory tests. There is some truth, of course, in the axiom that "we are what we eat", but nutritional status depends on considerably more than diet. It is best understood as the result of the complex interaction between our health at any given moment, the food we eat, and our surrounding physical, social and economic environment. It reflects not only the quality and quantity of food but also shows to what extent our bodies can transform it into the nutrients that will protect our health and permit us to function to the best advantage.

Nobody can be truly free unless they are free from hunger and malnutrition.

Because the environment and its impact vary so greatly from individual to individual, there can be no "standard" answer to the problem of malnutrition. And since no single strategy to combat it will produce the same results in every case, the approach to preventing and overcoming malnutrition has to be tailored to fit the circumstances. Bearing in mind this important principle, I would like to share with readers some reflections on the twofold challenge that we face today, starting with a brief overview of how nutrition has "evolved" over the years.

Nutrition and the sweep of history

If we look back in history, we can see more clearly that a major shift is taking place in mankind's approach to the main factors—poor diet and ill-health—that have traditionally accounted for most malnutrition. With the possible exception of foodborne diseases, most people have been blithely unaware over the centuries that what they eat might be hazardous to their health. The human species survived hand-to-mouth on whatever it could manage to hunt, gather, harvest or hoard. Anthropological studies show that the diet which fuelled most of human evolution was low in fat and very low in sugar, but high in fibre and other complex carbohydrates.

Some 200 years ago, when the industrial revolution brought radical improvements in methods of food production, processing, storage and distribution, people living in high-income countries found they could stop worrying about the threat of occasional hunger and could start indulging in preferred foods. Only during the past few decades, as people have benefited from greater control of infectious diseases and better access to food, have research findings confirmed the well-founded suspicion that dietary preferences may influence the onset of several major chronic diseases.

These include coronary heart disease, stroke, various cancers, diabetes mellitus, gastrointestinal dis-

orders, and various bone and joint diseases. Although many dietary factors have been investigated, those most frequently linked to such diseases figure prominently in the so-called "affluent" diet, a pattern of eating typified by the high consumption of energy-dense foods of animal origin and of foods processed or prepared with added fat, sugar and salt.

A two-pronged approach

For these reasons, if we are to promote healthy nutrition for all we must take simultaneous action on two quite different, if overlapping, fronts. Many less-favoured nations remain handicapped by a formidable array of development constraints. These include a rapidly increasing population, unproductive agriculture, environmental degradation, inadequate roads and other means of communication, limited health service coverage, and—all too often—civil strife. Among the harmful consequences is the tragedy of many millions of thin and stunted children who do not have enough protein and energy in their diets, who suffer from cretinism and other permanent brain damage because their diets and those of their parents are deficient in iodine, or who go blind or even die for lack of vitamin A. It is in just such environments that diarrhoeal diseases, frequently compounded by seasonal or chronic food shortages, take their heaviest toll in terms of malnutrition, ill-health and premature death. To reverse this situation is among today's most urgent priorities in the field of development.

WHO/T. Farkas

Hiroshi Nakajima, M.D., Ph.D.

At the same time, there has been a significant drop in the prevalence of infectious diseases, while food availability and the quality of diets have improved for population groups all over the world. The result in many countries has been a sharp reduction in infant and child mortality and longer adult life expectancy. These and related factors have paved the way for a dramatic expansion of a different type of nutrition crisis: diet-related chronic disorders are now flourishing in environments where, not so long ago, infectious diseases were seen as the greatest menace to health. Chronic disorders are fast becoming major killers in low- and medium-income countries. Ironically, their prevalence is especially high among the urban poor who pursue the unhealthy dietary habits and life-styles that, until recently, were considered to be the exclusive province of affluent groups. Such life-styles include unbalanced nutrient intake, lack of exercise, smoking, and alcohol and substance abuse. One type of malnutrition is being exchanged for or—worse still—being superimposed upon another, with no net gain for human health in the process.

Labels like rich/poor and developed/developing, by themselves, provide little insight into what causes malnutrition and how it can be overcome. The fact is, wherever we reside, it is *the way we live, what we eat,* and *how we interact with our environment* that determine our nutritional status. Whatever the cultural influences at work in a given milieu, all governments are challenged to develop policies that will make healthy choices the easy choices for their populations where good nutrition is concerned. As this issue of *World Health* will amply illustrate, healthy nutritional status is by no means the monopoly of rich countries, any more than malnutrition is somehow the prerogative of poor ones.

Let us try to see healthy nutrition in its fullest dimension. Only then can we best identify and influence the multiple factors—ecological, social, economic and political—that determine nutritional status. It is in this spirit that WHO and the United Nations Food and Agriculture Organization (FAO) will organize an international conference on nutrition next year. For the first time in history, governments acting in an international forum will be asked to think beyond the still-present problems of hunger and survival and to focus squarely on healthy nutrition, both as an essential component of the development process and as one of its most important outcomes.

Cover: "An apple a day keeps the doctor away." Popular wisdom says it all: more fruit and vegetables and less animal fat will keep you healthy.
Drawing by Peter Davies

IX ISSN 0043-8502

World Health is the official illustrated magazine of the World Health Organization.

Editor:
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World Health appears six times a year in English, French, Portuguese, Russian and Spanish, and four times a year in Arabic and Farsi. The German edition is obtainable from: German Green Cross, Schuhmarkt 4, 3550 Marburg, Germany.

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READEX FICHE

a global challenge

WHO/E. Mandelmann

Alongside the obvious problems of famine and survival, a new "food crisis" looms: how can we balance our diet to ensure a long and healthy life?

The means for making major improvements in human well-being everywhere in the world are already in our grasp. Our scientific knowledge is adequate, the technology has proved to be effective, and we have accumulated enough practical experience in its application. The implications are immense and call for broad, intensive and sustained efforts to increase public awareness of the relationship between food, environment and health. What is now needed is the political will and commitment to ensure that the appropriate level of human and financial resources is consistently available to apply these remedies. That will and that commitment will ultimately enable us to meet the global nutrition challenge. ■

H. Nakajima

Hiroshi Nakajima, M.D., Ph.D.

Osteoporosis

Osteoporosis, sometimes called "brittle bones", is caused by the loss of bone density in elderly people, particularly women, and leads to fractures that are often spontaneous. For reasons that are not yet clear, the number of fractures of the hip in elderly people is rapidly growing, even reaching epidemic levels in many developed countries. In the USA it is estimated that, by the age of 90, one third of women and one sixth of men will suffer a fracture of the hip, that in 12% to 20% of these cases the fracture or its complications will prove fatal, and that half of those who survive will need long-term nursing care.

Bone density increases throughout the skeleton during infancy and adolescence, before levelling out at the age of 20. Then it starts to diminish after the menopause in women and around the age of 55 in men, though more slowly with increasing age.

In the industrialized countries, women lose about 15% of their bone mass during the ten years following menopause. Middle-aged people whose bone density lies at the lower level of the norm will suffer more rapidly from osteoporosis as they grow older; by contrast, people with a high bone density will have a good chance of never suffering from this illness. So it is very important to ensure from an early age that bone formation is encouraged, particularly by giving children a good supply of calcium during the growing period.

Six major factors play a determining role in bone density. These are: a shortage of estrogens (and this explains the bone loss in women at the time of the menopause); physical inactivity; smoking, drinking alcohol and taking certain drugs; and not enough calcium in the diet.

So it is possible to prevent osteoporosis, first of all by ensuring that infants and adolescents receive an adequate supply of calcium, by taking plenty of exercise throughout one's life, and by abstaining from smoking or drinking too much alcohol.

In some women, the process of bone loss is rapid, reaching 0.5–2% per year after the start of the menopause. Such women should therefore consider having hormonal treatment in conjunction with supplementary calcium.

As the world's population ages, osteoporosis reaches epidemic proportions.

Certain links have been noted between the loss of bone mass and a high consumption of proteins and salt, as well as high concentrations of fluoride in the drinking water; these factors would help to explain the geographical variations in the incidence of osteoporosis. But since the aging of the population is such a widespread phenomenon—particularly in developing countries—osteoporosis is becoming a serious public health problem for the whole planet.

C.V.

WHO/L. Taylor

Open-air "physical jerks" in Cuba. Regular exercise helps to overcome osteoporosis.

New concepts of a balanced diet

by W. Philip T. James

The link between food and health is not new, since history shows that for centuries rich agricultural land has been a prized asset. In Europe, Africa, Asia and the Americas, civilizations were dependent on good agricultural practices, and the introduction of cereal-growing about 10 000 years ago allowed agriculture to become more intensive, thus encouraging the transition from a nomadic existence of hunting and gathering to one where cities could be built and sustained. Complex food storage systems were developed to cope with seasonal shortages of foods, and salt was a prized commodity because it not only provided flavour but also allowed foods to be preserved for many months.

This development of agriculture allowed small farming communities to flourish, but 70 years ago farms were still small and the life of farmers throughout the world was dominated by the weather. In the cold north, there were problems of growing enough food in the summer to provide for the winter, while in the hotter parts of the world the problem was one of rainfall.

Studies in Europe in the 1920s showed that poor people were short, thin and suffered from many infections. Their health improved and children grew taller if they were given a diet rich in protein, energy and vitamins. This diet became the recipe for health. Everybody soon came to know about the *balanced* diet, and the balanced diet could be guaranteed if a plentiful and varied supply of different foods could be eaten; for example, a mixture of *protein foods*, derived from animal products, *energy foods* rich in carbohydrate or fat, and *protective foods*, such as vegetables and fruits which were rich in vitamins and some minerals. Many new vitamins were discovered before the Second World War, and vitamin B_{12} was identified in 1947.

The Second World War proved to be a turning point in nutrition because, as armies fought across Asia, North Africa, the Middle East and Europe, countries were devastated, refugees fled in their millions from the war zones and food supplies became critically short. Major efforts had to be made to feed countries blockaded by war, so governments developed highly organized systems of rationing based on meticulous studies of what healthy people were eating. Food coupons were issued and huge public campaigns were launched to encourage children and adults to eat a sensible balanced diet. Milk was good for growing children, and animal foods, such as meat and cream, were luxury items in the diet. Children had to be given plenty of energy foods to grow and men needed energy foods for hard manual work. Vegetable growing at home was encouraged to supply protective foods year-round while women helped men in the fields to grow as much food as possible.

WHO/M. Vallencia

A young Mexican couple give vegetables preference over meat—a sure recipe for health.

Enough for everybody

The experience of the Second World War changed our whole view of public health and food policy. Well-fed children and healthy adults were dependent on a good diet but now we knew what people needed to eat. So successful had been the health education during the War that throughout the world politicians, policy-makers, government officials and economists all knew that the top priority must be to produce enough food for everybody. Milk and meat were the focus of attention, and were seen by the public as not only vital to health but scarce commodities which only the rich could afford. Dairy farming and animal husbandry were therefore top priorities for government subsidies and other help. This led to the second nutritional revolution—that dependent on agricultural production, with intensive efforts to improve our understanding of the nutrition of farm animals. As a result, in Europe, Australasia, Japan and North America there has been a huge surge in food production leading to massive food surpluses, economic readjustments and intense debates about the usefulness of paying such huge subsidies to the farming industry.

Medical research in nutrition was carried out in Africa, India, the Caribbean and South America, where major efforts were made to understand kwashiorkor, marasmus and other diseases of childhood. The problems of malnutrition now dominated nutritional thinking; the concept that society included vulnerable groups, such as children, pregnant and nursing mothers and the elderly, led to major changes in public health policy

WHO/Zafar

throughout the world. Free school milk and meals became a commonplace in European, North American and other affluent countries. Special antenatal, mother and child and infant welfare clinics were started, and these were adopted in the developing countries when it was recognized that plentiful good food could prevent growth-faltering in children and help them to combat parasitic and other infections.

Despite all this effort, deficiency diseases remain a huge problem, with millions of children dying or suffering from malnutrition, anaemia and vitamin A deficiency. Goitre and cretinism are still a terrible consequence of iodine deficiency and semi-starvation, while seasonal shortages of food are still a scourge in some parts of the world. Given all these problems of the Third World, surely all that is needed is improved sanitation and water supplies, more effective agriculture, and a public health policy which concentrates even more effectively on the vulnerable groups in society? Unfortunately other major nutritional problems have developed in the affluent West, and these now threaten the Third World too.

Adult chronic diseases

While the developing world was worrying about infant malnutrition, the problem of obesity was emerging in America and northern Europe. Plump babies after the war were considered well fed and healthy—until doctors started worrying about the alarming increase in the number of fat adults. Why were babies becoming fat and did it matter? Many mothers were no longer bothering to breast-feed and their babies grew fatter than ever before on very rich infant milks. The fashion for bottle-feeding spread to the Third World, with companies competing to promote their own brand of infant milk. Slowly the evidence mounted to show that babies were much better if breast-fed, and were less vulnerable to infantile diarrhoea and allergic conditions. Young obese adults reported that they had often been fast-growing and plump or overweight as children, so the slower rate of growth of the breast-fed child seemed no bad thing.

Physical exercise, essential for our nutritional balance, tends to be limited to our leisure time.

As societies became wealthier, transport and machinery at home and at work took over most of the energy-demanding jobs, so children and adults became more inactive. Physical activity depended more on leisure activities and sport than on the demands of work. Slowly it was recognized that the foods which once had been considered luxuries were now everyday cheap items produced by a new huge food industry selling throughout a country. Eating was for pleasure and the idea of a balanced diet was left to the library books. Intensive advertising of sugary soft drinks, chocolates, sweets, biscuits, cakes, hamburgers, sausages, pies and new foods became a huge profitable industry at a time when people needed to eat less as they did less.

The 1970s saw a change in ideas about public health in the West. Immunization, good nutrition, improved housing and the use of antibiotics had dramatically reduced children's death rates, but 25% of men and about 20% of women were still dying before the age of 65. The disease pattern had changed, and heart disease and cancers of the lung, breast and large bowel were now leading causes of death. Smoking was recognized as a killer which caused lung cancer and bronchitis. Heart disease was then seen to be linked with those dietary factors, such as saturated fatty acids, which caused an increase in serum cholesterol. Where the fat intakes were high, smoking amplified the risk, as did high blood pressure which was also linked to diet, to obesity, alcohol and excessive salt intake.

More recently there has been a huge increase in nutritional studies, all trying to explain why cancer rates differ so widely around the world; dietary factors such as salty smoked foods have been identified as cancer promoters, and vegetables and fruit as protectors. Obesity is now linked to a high fat diet and not simply to an excess of starchy foods. The many complications of obesity range from diabetes, gallstones, arthritis and high blood pressure to gout, breathlessness and skin disorders. As people eat foods rich in fat and sugars, they also become more constipated. This problem is now widespread in wealthy countries and, like large bowel cancer, has been linked to a low intake of the fibre-rich starchy foods. Dental decay is also closely related to the frequent consumption of sugary foods.

So how have we responded to these new ideas? Rather badly seems to be the answer, and it is not difficult to see why. Ministries of agriculture have worked for two generations with farmers to produce plenty of good cheap food, and tend to get angry if doctors tell them they are responsible for producing the *wrong* foods. The food industry now involves huge multinational concerns selling intensively to increase their share of the market. Their policies were developed on the assumption that cheap foods free of toxins and with a reasonable content of protein and vitamins were ideal. Fat- and sugar-rich foods clearly provide

WHO/Zafar

Food habits that encourage obesity and overweight are becoming ever more common in the big cities of the Third World.

plenty of energy, so they must be good!

Doctors with complex theories on why diet produces these chronic diseases which develop over a number of decades are seen to be far less dogmatic than they were in the days when increasing the supply of a single vitamin or mineral could rapidly cure the disease. Thus there is ample room for dispute and research workers delight in coming up with new theories and arguing over the details.

The challenge to the Third World

Health patterns are changing in developing countries. While malnutrition and deficiency diseases continue as major problems, particularly in rural areas, many societies are now changing their eating habits and becoming more "Westernized". As a result, the incidence rates of heart disease, high blood pressure and cancers are increasing very rapidly in some Third World urban societies. Childhood obesity is now common in Cuba, the rest of the Caribbean, and Latin America, and high blood pressure is becoming a huge problem in West and East Africa. Heart disease is escalating in Mexico, India and the Middle East.

Yet governments dominated, as in the West, by ideas about food security and deficiency diseases unwittingly contribute to the deleterious dietary changes by fostering the importation of Western ideas on diet. International food companies, like the tobacco companies, also see major opportunities for developing huge markets, and offer the attraction of providing new local industries which help to feed the rapidly expanding cities.

Intensive marketing and a pervasive sense that what the West managed to achieve in good quality, variety, taste and life-styles is what everybody strives for, leads to an automatic assumption by food technologists and economists that people, when offered the choice, will automatically demand a northern European or North American style of life and diet. This is to neglect the delights of the Mediterranean, southern Indian, traditional south-east Asian, Chinese and African diets which, when provided in adequate amounts, are usually much healthier than Westernized ones.

WHO has now drawn together the dietary evidence linked both to the chronic diseases of adulthood and to malnutrition. New nutritional goals for a country have been established. These suggest that, ideally, a country's food supplies should contain only modest amounts of fat, sugar and salt, with the majority of the energy coming from starchy foods such as cereals and tubers. A substantial intake of vegetables and fruit is also important. This amounts to a completely different concept of the balanced diet, in which protein and energy are no longer the priorities while excessive fat, sugar and salt are a cause for concern.

The challenge is now how to prevent not only malnutrition linked to want but also these diseases of affluence which threaten such widespread misery. Few developing countries will have the resources to cope with the emerging demands for treatment, yet prevention will require new thinking and a completely different set of priorities. WHO has recognized the urgency and complexity of the problem; it proposed that every health ministry should establish a nutrition council to reorient trade, financial, educational, agricultural and health policies.

Experience in the West suggests that the political will for change will only come about if the major voluntary organizations in society take these issues in hand, so that a community itself becomes the driving force for policy changes which must influence many sectors of a country. Departments of health must therefore involve community leaders in developing a new food policy if they are to prevent widespread disease and promote the welfare of adults as well as children. ■

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Obesity

Being too fat is one of the great phobias of the industrialized world, where the 20th century has imposed on most of us the aesthetic ideal of a wasp waist, a non-existent tummy and twig-like thighs. In other cultures, a fat tummy and a prominent backside are signs of prosperity and confer a certain prestige. But it would be wrong to take either of these fashions too lightly, since they apply psychological bias and social pressures that can influence health to a considerable degree.

Being too fat, especially to the point of obesity, is positively harmful to health. Obesity is involved in hypertension, cardiovascular diseases, arthritis, gallstones and other gastro-intestinal ailments. In women, it increases the risk of cancers of the gall-bladder, the breast (after the menopause) and the womb, and in men, cancers of the prostate and the kidney.

So at what point should we start talking about excessive weight or obesity?

If we divide our weight in kilograms by the square of our height in metres, we arrive at a value called the "body mass index." If this lies between 20 and 25, we can be sure that our weight is perfectly normal, and entirely compatible with good health. If it lies between 25 and 30, our weight is excessive and we are heading for obesity. As for a value of 30 and over, that indicates real obesity.

As an example, let us take someone who is 1.6 metres tall and normally weighs 60 kilograms; 1.6 x 1.6 equals 2.56, so if we divide 60 by 2.56 we get 23.4, well within the bracket of good health. But if that person weighed 80 kilograms, we should have to divide 80 by 2.56, giving an alarming index of 31.2.

The more serious the obesity, the greater the risk. Moreover, the fat accumulated around the abdominal area brings added risks. A simple way of measuring abdominal obesity is to measure one's waistline and one's girth at the hips and divide the waist measurement by the hip measurement. A result greater than 0.85 represents a health risk. For example, somebody who measures 90 centimetres round the waist and 100 centimetres round the hips would be considered very obese.

Obesity can be hereditary, in which case it calls for medical treatment. But in most cases, it develops slowly but surely—one could say it grows on one—whenever there is an imbalance between absorption and expenditure of energy, in other words when we eat more energy-rich foods such as fats and sugar compared to what we can burn up through physical exercise. The message then is clear. In some societies people are often sedentary and therefore use fewer calories. Sports or physical leisure activities and an appropriate diet are then essential in order to avoid overweight.

Obesity and smoking: two of the major risk factors for acute heart disease.

Drawing by Peter Davies

"Today feasting, tomorrow reclining in the coffin."

There is plenty the individual can do—limiting the consumption of red meat to once or twice a week and replacing it by fish, radically cutting down on refined sugar (especially when it is concealed in luxury foods like cakes and sweets), and eating considerably greater quantities of foods that are rich in fibre, vitamins and minerals, such as vegetables and fresh fruit. Natural sugars found in cereals, for instance, are quite enough to supply the body's needs in carbohydrates.

Obesity is far from being a sign of prosperity. It frequently affects low-income groups, especially in the poor areas of big cities where people have only limited access to high quality foodstuffs like vegetables, fruit and fish, or to education about healthy behaviour, and have little time to manage their diet properly or leisure to take part in sport. Furthermore, people often prefer certain prestige foods to the modest but health-giving apple or orange, and this adds a sizeable psychosocial component to the problem of obesity.

So it is important for governments on the one hand and the food industry on the other to support our individual efforts by affording everyone access to the kinds of food that are needed for good health; the former by stepping up their efforts to inform the public and implement healthy agricultural and nutrition policies, and the latter by ensuring the widest possible distribution of healthy foods.

C.V.

WHO/E. Mandelmann

A fair share for all

by Adolfo Chavez

As we approach the end of the second millennium of the modern era, we still have not developed any clear sense of our collective identity or formed any real idea of the magnitude of the problems we face. More significantly, perhaps, we are also unaware of the great potential we possess to resolve these problems.

Perhaps the world's greatest problem is poverty, accompanied by malnutrition, disease and ignorance—blights which are probably as old as humankind itself and which now afflict at least 2000 million people with extreme suffering. What is new, however, dating only from this century, is the condition of social wealth in many areas of the planet, where a majority of people have ample resources to live in security and even in superabundance. These "affluent" individuals now number some 1000 million.

To belong to the latter rather than to the former group, or to an intermediate category whose members have few resources but are simply able to work and to eat, is largely a matter of birth and not, as some people persistently argue, a right that is acquired by perseverance and saving. If only we could grasp this fully, if only we could all understand that we might just as easily be living in the Sahel or Bangladesh and suffering from the natural disasters visited upon the populations there, it would do much to help us to find the solutions we so badly need.

This duality of our world today gives rise to the greatest happiness and the most dire misfortune. Happiness, because riches have brought tremendous technological development and built up immense wealth which ought to resolve the basic problems of the entire human race; and misfortune, because the extremes of egotism and exploitation such as we are now witnessing often produce the opposite result and propel the human race towards a seemingly inexorable fate, as in a Greek tragedy.

Widening the gap

The world food situation is the most glaring example of inequality—an inequality that is conflictual and damaging for all. Affluent populations are served by supermarkets packed with every imaginable type of food, many of which are conducive to the chronic diseases that are characteristic of these populations; while in the poor areas, paradoxically where the most food is produced, there is too little food to be had simply because people lack purchasing power.

The big food-processing companies purchase raw foodstuffs at low prices, but the prices of their finished products are inflated by processing, packaging and advertising and are therefore beyond the reach of any but the richest sectors of society. Hardly anybody stops to think where this global food policy is taking us, when in fact it is widening the gap between rich and poor.

It would seem that the misuse of modern technology is replaying the biblical account of the loaves and the fishes, but exactly in reverse; for where Christ was able to feed thousands with just a little food, modern technology, with all its millions of tons of grain and millions of acres of pasture, succeeds only in raising the cholesterol level and causing obesity in an apparently privileged minority.

The rich countries of the world have formally committed themselves to giving seven thousandths of their gross national products to external aid, but only the Scandinavian countries and the Netherlands are actually doing so. The total amount set aside for development assistance—US$ 47 600 million—is heavily publicized but corresponds only to US$ 60 per developed-country inhabitant per year. Such an amount makes no significant difference in the face of the real and continuous flow of money from the poor to the rich countries. Faulty

Above left ***On the one hand, the poor peasants who produce much of the world's staple foods have scarcely enough food themselves for survival.*** **Right** ***On the other, there is a surplus of refined foodstuffs, many of which entail risks of chronic diseases. A world food policy that restores the balance is vitally needed today.***

administration also means that this aid has no significant impact towards finding lasting solutions; the main problem is not so much the small amount of aid as the fact that it often consists of dual investments that produce greater benefits for the "donor" than for the recipient.

Where food is concerned, the motive behind the aid is often to dispose of a donor country's surpluses. Sometimes this means aggressive intervention in the markets of the recipient country; what is most objectionable is when the aid is given with the attached strings of political control, which limit the independence and possibilities for self-sustained development of poor countries.

To crown it all, this millennium is finishing badly because the poor countries are being forced to carry out policies of economic adjustment dictated by the large banks and creditor governments, which only accentuate the divide between regions and social classes. It is difficult to understand why it is only we, in the poor countries, who have to "adjust" our economies, matching income to expenditure and demand to supply, abolishing subsidies to agriculture and imposing controls on workers' wages, when the rich countries are not doing so.

The real health infrastructure in the poor countries should still have the aim of bringing "bread and soap" to all, that is, encouraging proper nutrition and preventing communicable diseases. What we are getting instead from the rich countries is sophisticated computerized diagnostic techniques. I am convinced that, if the new technology of primary health care were to be properly used, there would, with the present level of international aid, be no reason for such a high prevalence of the malnutrition-infection syndrome or for the high infant and pre-school mortality in vast regions of the world.

Is it not time to bring true democracy to the world, among countries and groups as well as among people? For it is only then that it will be possible to share available knowledge and technology and thus, to some extent, through basic services, to ensure that the benefits generated by our Planet Earth are also shared. Why should people in the developed countries see the logic of equal opportunities for all but fail to see the same need for the entire human race?

We all know how much is spent on arms and how much is spent on the exploration of outer space on the pretext of discovering new resources, and yet the need to invest more to make better use of our own planet is rarely stressed. Much would be gained, including work for the deprived that would generate a minimum of secure income, and all the benefits would take care of many of our anxieties about what may happen in the near future.

Reasonable daily diet

With every day that passes we have more and more data to show that there is a diet that is ideal for us all, that is, a diet which keeps our bodies functioning healthily and protects us against chronic diseases and premature aging. It is also clear that we are not merely descended from the primates but that we continue to have the stomach and intestines of hunter-gatherers and, no doubt, also similar cells and tissues. What we need is a reasonable daily diet, with plenty of vegetables and fruit and small amounts of animal products and high-energy foodstuffs. We now know that to live better, longer and more healthily, there is no need to kill so many animals, or to grow so much grain for fodder, or to destroy woodlands in order to introduce grazing. The good news for the health of all living beings on the planet is that it is possible for us all to eat in harmony with nature. But will we all understand this before the end of the millennium?

Now that news travels faster than the wind, we should proclaim the idea that a good diet, the diet that is right for people, is a simple one, containing plenty of fresh vegetable foods. Many already know this and many are already changing their eating habits and life-styles, but unfortunately not yet in sufficient numbers to safeguard the world's scarce resources. It needs to be understood that just one family of consumers in the rich parts of the world uses more energy and creates more pollution than 30 rural families in the poor parts of the world. Nevertheless, it is the poor peasants who are being blamed for destroying the environment because it is they who are actually cutting down the trees.

The human race is approaching certain critical situations in which swift and intelligent action is needed. Many diseases are also blowing like a wind from the poor to the affluent, and the crises in poor societies may presage greater worldwide crises. History has shown that Rome was not able to shut itself off from the rest of the world's people, and that it ultimately fell prey to the same hunger and disease affecting others. We are fast moving towards a repetition of this experience, only this time on a planetary scale.

Back in the Middle Ages, the Christian church in Europe introduced the tithe system—a contribution of one-tenth of one's produce—in an attempt to mitigate the poverty of the masses. Unfortunately, the funds thus gathered were not well administered. If anything effective is to be achieved today, the affluent countries and sectors, besides rationalizing their own consumption, will have to think in terms of global "sharing", starting with at least three to four times the volume of external aid which must, above all, be properly administered. Only in this way will we be able to start the next millennium by taking a definite step towards relieving the extreme suffering of the great masses of the world's deprived. ■

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WHO/J.-L. Ray-AKF

Some 2000 million people still live in poverty.

WHO/T. Farkas

Food aid in action

Interview with Peter L. Pellet

Dr Pellet, you have just come back from a mission to Africa to look at food aid. Can you tell us how it works?

The country I visited is in a paradoxical situation. It is well organized with a very good primary health care system available to 80% of the population and yet, at the same time, there is extreme poverty and desperate malnutrition. I saw food aid functioning in the village health centres: I saw undernourished mothers holding emaciated infants being examined by health staff and then being given food. Their children were specially vulnerable and probably would not survive without help. That is food aid at its simplest, working efficiently to reach those in greatest need.

One of the criticisms of food aid is that it introduces food that changes eating habits and makes people dependent on imported foods.

It is true that, on some occasions in the past, food that was brought in from abroad was not in line with traditional diets. But I think that the organizers of food aid are now sensitive to this problem. In the country I visited maize meal was distributed to adults.

And that is the traditional food?

Yes, that is the local staple food. A weaning food for babies has also been developed in that country, based on maize meal.

The sort of food aid that hits the media headlines is that distributed by the truckload to refugees or populations struck by famine. Did you see any of this emergency aid?

The country I just visited has a very humane way of dealing with this sort of situation. There are refugees settled in camps and others in villages along the border. When you come to a health post in this region you will find that they are caring for both locals and refugees and that food is available to all. Similarly, local people going to a refugee health centre would receive treatment and possibly, if they had a malnourished child, food as well.

What about longer-term prospects for refugees?

Increasing emphasis is being put on developmental assistance. Of course, at the onset of a crisis resulting in an influx of refugees, the priority is getting the food to them. However, where the situation is protracted, food aid and other types of assistance are used to promote the refugees' self-reliance, mainly by training for a lucrative activity or by giving them access to land to cultivate.

As a long-term solution, is it better to give people food to eat or to help them to produce their own?

Aid for development is the real answer, using food aid to help people produce more and better food themselves—helping them to improve food production by forming cooperatives and digging wells, for example.

There has been a dramatic change over the last 10–20 years in the way nutritionists look at the world. We know now that malnutrition exists not only because there is not enough food to eat; it is also related to eating habits, to the way food is prepared in the homes, and to diseases such as diarrhoea, intestinal worms and malaria.

But the root causes have to do with how society functions. In the country I visited in Africa the small farmers are in the "poverty trap" and they cannot get out of it because they have no capital, so no access to loans to buy seeds and fertilizer or to dig wells. They are doomed to continue producing the cheapest products in small quantities. Food aid might enable them to work on their own fields rather than to go and work on the big sugar, tobacco or coffee plantations in order to earn money to meet their essential needs including food. Thus food aid has to be combined with, for example, the provision of quality seeds or cheap loans. Such combined programmes could help small farmers get out of the poverty trap if the underlying problems

Food aid has to respect the cultural preferences of the receiving countries.

of land distribution and agricultural policies promoting the production of cash crops for export were solved.

How can those responsible for health have any influence on agricultural polices?

Ministries of health do their best to keep their populations healthy by running campaigns against tobacco or in favour of healthy eating, but it is true that, at the same time, other ministries have sometimes promoted policies that are positively harmful! In the past, ministries of health have had little influence on overall socioeconomic policies.

Fortunately, there is now generally a much better understanding among politicians and senior administrators in all sectors that policies relating to agriculture, prices, etc., influence health profoundly—for better or for worse. Serious consideration must be given to this fact before new policies are decided upon. In a nutshell, health promotion through healthy public policies involves different sectors.

Food aid can provide important support to the implementation of coordinated policies especially in areas characterized by widespread poverty. In the meantime, feeding programmes for vulnerable groups like pregnant women make it possible to give birth to babies who are not underweight and will have a good start in life.

What is the role of the health sector in other types of food aid projects such as rural development and settlement projects?

For example, smaller water impoundment schemes which aim at increased productivity through irrigation may contribute to the dissemination of malaria vectors or schistosomiasis. In larger schemes involving resettlement, in addition to the health risks I just mentioned, there are other problems such as people moving to areas where there are endemic diseases to which they are not immune or settlers bringing in new diseases. The spreading of schistoso-

Children in a refugee camp enjoy a hot meal; good food is an absolute necessity in such circumstances.

WHO/P. Almasy

WHO/UNICEF/M. Getzendanner

Local produce makes a nourishing meal for a young African child. Food aid should start by encouraging people to become self-sufficient in food.

miasis is a typical example. Some of these projects are indeed supported by food aid. Settlers would receive food assistance for, say, two or three years to ensure that sufficient food is available to them until they are able to meet their basic needs from farm income. I would like to repeat again, any kind of a project whether supported by cash or food needs proper planning, assessment, analysis and continuous monitoring of positive and negative aspects. If these steps are not taken the use of food aid as well as of any other developmental resource is not justified.

Could it happen that the food aid prevents real changes for the better?

It might be that food aid could lull governments into a false sense of security because the immediate problem was being solved. They could be tempted to pay less attention to social issues such as land distribution which we mentioned earlier. Crucial decisions for their solution may be difficult to take for political reasons, but must be taken if the problems are to be solved. On the other hand, the targets for food aid are people who have suffered from the deteriorating economic situation and from the change in economic and social policies called "structural adjustment". It would be unwise to withdraw food aid, because those "structural adjustment" programmes also aim at reducing social expenditure, particularly on education and health programmes.

Can food aid help to alleviate the negative effects of these new policies?

Yes, because food aid is not only aimed at giving food to the hungry, but at helping them to improve both their health and their family economy. Food aid for agricultural and rural development is one example among many others. Another, lesser known example is selling food from food aid in small quantities at cheap prices directly to the beneficiaries, or in shops and markets. This has to be done in such a way that it does not restrict local food production by reducing the price of local produce to a point where farmers are discouraged. The money collected is then used to provide cash support to development projects in the poorest areas of the country.

Food aid can provide the momentum for local development, both increasing food production and income and improving living conditions in general.

So we could sum up by saying that food aid, if it is carefully planned to reach vulnerable groups, taking local food habits into consideration, and is aimed at promoting local agricultural production and development in general, is an excellent means of both combating malnutrition and helping countries to improve their socioeconomic situation. ■

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Food for health

The World Food Programme (WFP), the United Nations Food Aid Organization, started operations in 1963. WFP is now the second largest funding agency in the UN system. It is responsible for about 20% of all food aid, which it provides in two ways:

— **emergency food aid** in acute hunger situations or following natural disasters or war, valued at US$ 246 million in 1990;

— **support to socioeconomic development**, particularly in programmes for health, education, agriculture and rural development. In 1990 food worth US$ 436 million was provided for such projects.

The World Food Programme in the community . . .

WFP aims at assisting the poorest populations. Women constitute an important percentage of beneficiaries, either indirectly when they or their husbands receive food as part payment for working on a development project, or directly when food is distributed through health centres and hospitals. Much food aid is channelled through feeding programmes as an incentive to pregnant women and breastfeeding mothers to attend regular health care sessions at their local health centre. It is also used to encourage an increased attendance of female students in nursing schools and to support professional training programmes for women.

Food aid also provides food to disabled people and those with chronic diseases such as tuberculosis or AIDS.

How people live is important for their health. Support is therefore also given to providing clean water supplies and toilet facilities, improving homes, and cleaning up market-places. In Latin America, a house-improvement scheme is reducing the number of disease-carrying insects.

. . . in schools . . .

People who can read and write find it easier to understand health education and information programmes and thus to adopt healthier life-styles and to cope with disease. In areas where many people are illiterate, the infant death rate is higher. If food is served at school, parents are eager for their children to attend. Food aid used for school meals results in healthier children, and when they are not hungry they learn more easily. WFP also finances programmes in schools to promote personal hygiene (such as washing hands before eating), immunization against childhood diseases, and treatment of intestinal worms.

. . . and in hospitals

WFP makes more than US$ 42 million worth of food available to hospitals in 14 countries. This ensures not only better food for the patients but also savings in the hospital budgets that can be used to treat more patients and provide better care. WFP helps finance the purchase of medical supplies and equipment, the maintenance of existing equipment, and part of staff salaries.

Correctly used, food aid can do much to improve health. In order to get the best health effects from its activities, WFP works in close collaboration with WHO.

E.L.

Politics and nutrition in Africa

by Tumsifu N. Maletnlema

Politics dictates economics, which in turn determines food and nutritional status, the force behind politics. Let us look at politics, economics and nutrition in the African countries.

During the 1970s, thousands of Africans died of famine and malnutrition-related diseases. By then, the transfer of countries from colonial rule to African governments had already taken place in most of the continent, and so the blame fell directly on the new governments.

Throughout the 1980s and to date, starvation seems to be the most common form of malnutrition. Ethiopia alone had nine million famine victims in 1983. Mozambique, Somalia and Angola have also added to the toll. In fact, the most common form of malnutrition seen in Africa is protein-energy deficiency, combining starvation and protein deficiency. In 1985 alone, between 25 and 30 million children were affected all over Africa and required special feeding if they were to survive. Many did not receive any attention at all.

Other forms of malnutrition affecting many hundreds of thousands of people include iron, iodine and vitamin A deficiencies.

For over 20 years, the United Nations and some bilateral agencies have tried to convince the African governments to formulate national food and nutrition policies. But to date only Kenya and Lesotho have a written policy, although neither has been able to put the policies into effect. Tanzania is about to enact a policy, formulated over the last 12 years. Ghana, Malawi and Zimbabwe have draft policies, but the rest of the sub-Saharan countries have no written policy.

A policy can provide guidelines for action. If there is no policy, action tends to be uncoordinated, conflicting or detrimental. For example, when food shortage is reported in a country where there is no policy on food and nutrition, action is often delayed until the situation develops into a crisis. Absence of a policy also means that no one is responsible for food supplies. Minor shortages are soon exaggerated by unscrupulous traders, food prices shoot up suddenly, panic grips the community and this disrupts the normal food supplies. A food and nutrition policy can help to ensure that early signs of food shortages are detected and also that corrective action is taken.

The colonial rulers built for themselves a very efficient government system separate from traditional or ethnic systems. Unfortunately, the African governments inherited the system without much change, and it operates according to "Western" values and concepts. Under the traditional system, local values, materials and beliefs dominated all activities of government or individuals. In traditional agriculture, for example, food production dominates everything else, but in the colonial, still prevailing system, cash-producing crops are given priority. Pick any other example of government activities in the African countries, and you will find local interests conflicting with political interests. Education, for instance: does it prepare one to work and live better in the village, where agriculture is the main occupation? Instead, it seems to encourage urban migration, driving the people to quit their village. Is that the objective of the government? No. Why then does education pull Africans away from the village even if they will face starvation and misery in town?

Recently I listened to a secondary-school quiz in one relatively developed African country. Of the 56 questions put to the African students, 20 were about Europe, seven about the USA, two about Russia, one each on Japan and Thailand, four on the human body, six on the arts, two each on physics and nutrients, and the rest on general knowledge. There was not a single question on the situation of Africa or of its countries.

Therefore, to date, the remnants of the colonial heritage still hang heavily on the African governments, so that countries still maintain old policies, in support of lost causes like the cash crops, while discouraging food produc-

WHO/P. Almasy

A market in Abidjan, Côte d'Ivoire. A nutritional policy enables the authorities to detect early signs of malnutrition and to take countermeasures.

tion. Cassava cultivation is the cheapest method of producing natural starch; it could be the answer to the energy deficiency in Africa, but research must first eliminate the cyanide which it contains and which can be dangerous for health. However, apart from a fairly unknown unit in Burundi, I know of no other centre conducting significant research on cassava processing for human consumption in Africa. Mark you, growing cash crops is also essential and important, but the same if not better attention should be given to the food crops. In a few countries where food production is given some attention, the emphasis tends to be on the cereals but, since minerals and vitamins are also deficient, the production of fruits, nuts and vegetables is equally important.

The debt crisis and the resulting economic adjustment policies, monetary devaluation combined with low or no salary increase, have all resulted in food prices rising far above 60% of the income of many families. In Zambia, for example, the consumer price index rose from 125 in 1976 to 1625 in 1988, while real wages decreased slightly. With urbanization close to 60% in Zambia, most people depend on wages to buy food. As a consequence, when the authorities doubled the price of the staple food in 1990, riots ensued.

Let's try to assemble a model of a community formation. It starts with people, land and all the available natural resources. A community may be lucky if it finds itself living on rich land, with adequate water, or precious minerals.

The people start to use the natural resources and, to facilitate this, they arrange themselves in a certain order based on laws, usually colonial, or ethnic. This order can simply be referred to as "the community set-up". This set-up determines who has power over whom and what. The process of developing and monitoring the set-up is the community politics.

To make use of natural resources certain conditions of the community set-up have to be met. If you want to utilize land in Tanzania, for example, it may just be enough to walk to a village, ask a villager to show you round and look for unused land; then talk to the village chairman and ask for the piece of land. In some areas you pay virtually nothing for it. In other areas you may have to pay for developments already carried out there. A similar action in some other African countries may land you in prison for trespassing.

The community set-up develops over years and eventually it determines how everything should be done, including distribution of natural resources and community products, such as food and services. If this community set-up is not properly formulated, it automatically destroys the use of natural resources and creates biased distribution, which may lead to *nutrition problems* in one or more areas of a country. It can also lead to civil riots and armed conflict, which several countries are experiencing right now.

WHO/J. Schytte

The source of life and of good health, clean water has an important role to play in any food policy.

In many African countries where civil strife never ends, people cannot use natural resources like land and water because of destabilization. Since independence in the 1960s, only one or two countries have been free from civil strife (or violent politics). Six countries have suffered from military strife for 10 to 15 years and, of the remainder, only nine have no records of open warfare, but most of these have had civil troubles and violations of human rights.

During the 1950s and 1960s, Africans successfully mobilized their communities to press for and work for political independence at any cost. The people responded and contributed a good amount of money, all sorts of materials and technology. Above all, people contributed blood and their lives so that Africa could be free. Leaders formulated policies, which led Africa to independence. There was no option of asking for external aid as we do today, but genuine help came as soon as the well-wishers realized Africans were serious. Today Africa is pressing for the dismantling of apartheid in South Africa. As long as Africans are united they shall win.

Famine and malnutrition are even worse than apartheid and, unless Africa stands united and determined to eliminate it, there is no way one country, alone, can do it. Certainly, aid will never end famine and malnutrition.

With that in mind, African professionals in food and nutrition met in 1988 and created a body to initiate and organize joint action all over Africa. Since then a number of activities have been initiated in:

- organizing and developing the workers in food and nutrition;
- assessing the situation of food and nutrition in Africa;
- developing a policy and an action plan;
- putting the plans into action;
- monitoring by repeating the last three items.

Food and nutrition policy guidelines have already been prepared for use by food and nutrition workers in Africa. The first and most important step in formulating a national policy and action plan in this field is to form a group of all those who deal with food and nutrition in a country. Such a group can then arrange to meet, choose its own leaders and discuss the problem and solutions as its members see them.

Africa has enough resources to solve the problem of hunger and malnutrition, but those resources have to be wisely harnessed. ■

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WHO/T. Jansen

A schoolroom in Java, Indonesia.

IDEAS FOR ACTION

. . . in the school

Children are our future, and will benefit most from learning about health. As a school teacher, you have an essential role in the struggle for health. Here are some suggestions for activities that could easily be organized in the school.

1. Prepare a flannelgraph or poster with the main types of food and ask the children to group them according to those that provide proteins, fats and so on. Make the point that many foods fit into more than one category.
2. Ask individual children to list the health-supporting foods they ate the day before.
3. Conduct a class survey to find the most popular health-supporting foods. Allow each child two votes. Display the results and discuss them.
   Note: It is important to help the children put their knowledge into practice. What the children have learned will remain "school knowledge" unless you are able to help them to transfer it to their lives in some relevant and practical ways. If at all possible, involve the parents in the activities.
4. Organize a class or school festival. Ask the children to help plan a festival, which must include a feast or a meal. The festival could be in memory of the founder of the school, or could mark a sports or academic achievement or other similar event. Tell them to choose special foods to suit the occasion and to decide whether these are well balanced. Help the children to devise a ceremony to give the occasion special atmosphere. Invite parents and community leaders.
5. Plan a meal for the family. If it is possible to communicate with the parents, ask whether the children might plan and prepare a main meal for the whole family. The children might work best in small groups with your supervision and guidance.
6. Prepare a school lunch box. Some children might bring lunch boxes with them and small groups could help to plan different menus for several days.
7. Plan school meals. Meals are offered in some schools and, if the supervisors of such meals could be persuaded to cooperate, the children could take turns to help plan and prepare different meals each day for a week.

These suggested school activities are extracted from ***Food, Environment and Health: A Guide for Primary School Teachers*** by Trefor Williams, Alysson Moon and Margaret Williams, World Health Organization, Geneva, 1990. Price: Sfr. 26.- (special price for developing countries Sfr. 18.20).

This book gives educators a highly practical collection of facts, advice, projects, games, illustrations, stories, and sample questions for use in teaching children the importance of healthy habits, particularly concerning food, personal hygiene and the home environment.

Liberally illustrated, the book contains numerous suggestions for involving schoolchildren in practical activities that will reinforce what they learn and help them to relate their new knowledge to their lives outside the school. Participation by parents and community leaders in many of these activities is also encouraged as yet another route for spreading the book's simple—yet vital—messages.

The book contains teaching units on:
— Food and the body
— Keeping food safe
— A safe water supply
— Safe collection and disposal of waste
— Personal hygiene
— Insects, pests and domestic animals—their role in spreading disease
— A healthy home environment

Place your order with:
Distribution and Sales
World Health Organization
1211 Geneva 27
Switzerland

. . . in a discussion group

Reading about healthy food is important. But more important is to discuss how the food situation can be improved:
— for yourself
— for your family
— for your local community
— for your country.
And most important is to do something about it!

A good start would be to form a discussion group with your family, with your friends, in the school, or in one of the local organizations (women's groups, scouts, sports clubs, trade unions, political parties, and so on).

If you see yourself as a leader, you should create and lead the group; otherwise, suggest the idea to one of the local community leaders.

Some suggested discussion points:

1. Do we have healthy food habits in the family or local community? Do we eat enough vegetables, fruits, grains and pulses? Do we eat too much fat, meat and sugar? List five positive points and five negative points.
2. Discuss how the five negative points can be improved. For example, the family could list the food that was eaten during the last three days. Did we have too much of some items (e.g., sugar, sweet biscuits or soft drinks) and too little of others (e.g. fish, fruits and vegetables)? How could we change?
3. Are there any food-related diseases in the family or community? Are people too fat or too skinny? Does anyone suffer from lack of vitamins? (You could involve the local health worker in this discussion.) How could the situation be improved?
4. What kind of food is sold in the local market or local shops? Are healthy foods promoted, or only foods such as biscuits, sweets, soft drinks and chocolate? If there are problems, they could be discussed with the shopkeepers.
5. Do you avoid some foods because of tradition or habit, but which could improve the food situation if they were eaten? In Japan, for instance, seaweed is much appreciated and provides healthy food. In many other countries where seaweed is abundantly available it is never eaten. Find similar examples and discuss how eating habits could be changed in order to improve health.

WHO/J. Schytte

Women exchange cooking recipes in Mauritania.

Use your imagination to start discussion on important issues. Prepare a plan of action to improve the situation, and take action whenever possible.

The Editors of *World Health* magazine would be glad to hear from you, should you succeed.

A healthy diet is in everybody's interest. Millions of people are suffering from diseases that can be alleviated or avoided by a healthy diet. Every year innumerable lives—and vast sums of money—are wasted by suffering and premature death from diseases caused, at least in part, by faulty nutrition. But to make a healthy choice an easy one, the policies of government, industry, and agriculture must change. They must all be designed with health in mind. This needs cooperation between several government departments—agriculture, health, trade and industry, education and science, the environment, and finance. It needs the support of farmers and food manufacturers, retailers and caterers. It needs the backing of the health and education professions and of the media.

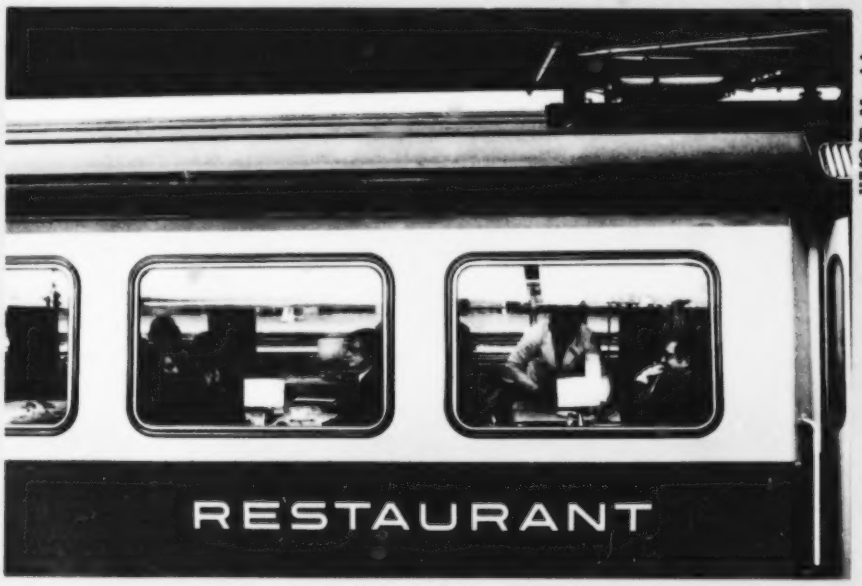
Above all, the creation of a healthy national food supply requires a vigorous demand from consumers—exercising their rights as citizens and making their voices heard.

What can you do? You could, for example, encourage healthy eating in schools, at work, in fast-food outlets and restaurants by making your opinions and preferences known to the organizers, and encouraging your friends to do the same.

Some other suggestions for action can be found in this issue of *World Health* magazine. Are you an activist for healthy eating?

E.L.

Food for a healthy nation—making the change



WHO/E. Mandelmann

Dining out? Make your preferences known!

Healthy proverbs

Keep your head cool, your stomach empty and your feet warm. (Russian)

After dinner rest a while, after supper walk a mile. (Latin)

Long meals mean a short life, short meals mean a long life. (Italian)

Diet is the first medicine to take. (Italian)

A dinner without fruit is like a party without music. (Arabic)

Enough is as good as a feast. (English)

Bread and cheese is the medicine of healthy people. (French)

He who eats on a full stomach digs his grave with his teeth. (Russian)

Foodborne illness: a growing problem

by Mohammed Abdussalam and Dieter Grossklaus

Thousands of cases of cholera in Latin America have focused public attention on the menace of contaminated food and water. Individual cases or small outbreaks of foodborne disease generally remain unnoticed or may not be reported by physicians. Perhaps less than 10% of cases of foodborne illness are reported in the official morbidity statistics of industrialized countries, while in developing countries the corresponding figure may be as low as 1%. Furthermore, it has been observed that these diseases continue to increase both in the developed and developing countries. The reasons for this increase are not fully understood, but it is believed that insufficient attention to foodborne disease is paid by health authorities in many parts of the world.

Such disease is caused by contaminants acquired during the production, storage and distribution of food. Some may be eliminated during processing, whereas the others may survive and may increase under certain conditions. The nature and incidence of foodborne illness is strongly influenced by agricultural practices, food technology in industry and the home, and ecological, environmental, socioeconomic and cultural factors. Other factors such as beliefs about health and disease, religious convictions and even considerations of prestige influence the selection, preparation and consumption of food. The resulting eating habits may sometimes protect people against disease, but often they lead to illness, for example through the consumption of raw or undercooked food. Prejudice against the irradiation of food, a technology that can assure safety at reasonable cost, is widespread even among educated people. Eating habits and their underlying beliefs are very difficult to change and they present a considerable challenge to health educators.

Contaminants

Microbiological contaminants are responsible for over 90% of episodes of foodborne illness, including typhoid fever, non-typhoid salmonelloses, cholera, other diarrhoeal diseases, bacterial and amoebic dysenteries, botulism and other bacterial intoxications, hepatitis A, and trichinellosis. In industrialized countries many of these diseases have declined in recent decades, but salmonellosis and some others have defied all efforts to control them. In Germany the incidence of these diseases may have risen as much as ten- or twentyfold in the last two decades. Similar trends have been reported in Canada, Finland, the United Kingdom, the USA and elsewhere. In 1985 it was estimated that there were at least 24 million cases of diarrhoea caused by foodborne microorganisms annually in the USA. The associated costs were considered to be up to US$ 10 000 million a year. It was recently estimated that in the Netherlands there were annually 1.5 million cases of foodborne microbial diseases in a population of 15 million.

The information available from developing countries shows that these diseases are common there also, as exemplified by infant diarrhoea. This is to be expected, since sanitation can be poor and water supplies are often polluted. In fact the problem is more serious because of widespread malnutrition and the threat of cholera, typhoid and several parasitic diseases. The medical, social and economic burden of these mainly foodborne diseases is certainly heavier in the developing countries than in the developed world.

Chemical contaminants include pesticides and drugs used in agriculture, residues of which may persist in food. Other substances may come from the wider environment. None of the chemicals used in food production is known to constitute an appreciable health hazard if the recommendations of the FAO/WHO Codex Alimentarius Commission are followed and as a result the quantity of the residue does not exceed the prescribed limits. In industrialized countries, where appropriate control measures are taken, illness caused by chemical contaminants of food is minimal. However, these contaminants are viewed with considerable misgivings by many members of the public. The illegal use of chemicals in agriculture or as food additives can have serious consequences, as with the fraudulent addition of motor oil to edible oil and the milling of mercury-treated wheat. During 1981–82 in Spain, over 500 people died and many were crippled as a result, apparently, of consuming adulterated olive oil. However, apart from their illegal use, chemicals constitute a much smaller hazard as food contaminants than do microorganisms and parasites.

Toxic plants constitute a problem in some regions. In others the poorer sections of the population may consume potentially toxic grains, e.g. lathyrus or cereals carrying ergot. Many moulds on grains, fruit and oilseeds produce mycotoxins, some of which have been shown to cause liver cancer in animals.

Marine fish and shellfish sometimes become dangerously toxic without warning. Ciguatera poisoning in the Atlantic and puffer fish poisoning in the Pacific are well-known fishborne intoxications. Paralytic shellfish poisoning sometimes occurs following the consumption of shellfish harvested on sea coasts, even in temperate regions. This type of poisoning is to be distinguished from illness caused by infectious agents such as those responsible for typhoid, cholera and poliomyelitis, which can also be transmitted by shellfish.

What makes contaminants dangerous

For a contaminant to produce disease it has to be sufficiently toxic or virulent and present in adequate quantity when the affected food is consumed by a susceptible person. Several

A milk-bottling plant in Nepal. Strict control of industrial food processing assures the safety of the final product.

WHO/T. Farkas

chemicals and many biotoxins survive cooking and other procedures employed in the preparation of foods.

Much more important, however, is the growth of disease-producing bacteria in food. They are responsible for most outbreaks of foodborne illness. Ordinarily, small numbers of these bacteria, after being swallowed with food, are killed by the acidic juices of the stomach or are made harmless by the immune mechanism in the body, and no illness results. If they are swallowed in large numbers, on the other hand, severe disease may be produced. If certain nutrients and water are present in food stored at room temperature for more than 4–5 hours, bacteria may multiply and disease may occur. Bacterial growth is inhibited by cold storage, acidity and certain quantities of salt or sugar that interfere with the availability of water. Food containing large numbers of bacteria may nevertheless be rendered safe by adequate heating, although this does not remove bacterial toxins.

Conditions favouring bacterial growth and the formation of toxins arise largely because of the ways in which food is handled, processed, stored and consumed. Outbreaks of foodborne disease in industrialized countries have been linked with the preparation of food too far in advance and its storage at room temperature, inadequate cooking or reheating, the use of contaminated ingredients and unsafe water, and cross-contamination between raw and prepared food.

Strategies for safety

Food safety in most countries typically depends on the enforcement of laws and standards through systems of inspection, and on some education of food handlers. Unfortunately, even the well-developed health infrastructures and sophisticated technologies in industrialized countries have not resulted in satisfactory control of foodborne diseases. In developing countries, where health infrastructures can be weak, street vending of food is common and rural food supplies may not go through a marketing system, the legal approach adopted in industrialized countries is only partly applicable.

The improvement of food safety everywhere requires the primary health care approach to be adopted in addition to legal control and inspection. Bearing in mind the socio-cultural values of the community, messages on food safety have to be disseminated as widely as possible.

The Food and Agriculture Organization and WHO have been working for the last three decades on the legal, administrative, technical and commercial aspects of food control in their Food Standards Programme. In addition, WHO is helping to incorporate food safety into primary health care systems. A rapid and inexpensive approach to the identification of faulty food handling has been developed. It has been tried in low-income homes and in food service establishments in both industrialized and non-industrialized countries. The information gathered and the related epidemiological investigations provide a sound basis for health education aimed at correcting faulty practices. WHO has put forward ten golden rules for safe food preparation in homes and restaurants (*World Health*, November 1988, page 7). It is also worth noting that in many industrialized countries special attention is being paid to the rearing of farm animals free of infectious agents.

All such measures require the close collaboration of communities, industry, and government agencies concerned with health, agriculture, veterinary care, commerce and education. ■

WHO/Zafar

Preparing a meal in Venezuela. Dishes cooked fresh and served immediately help to reduce the risk of foodborne diseases.

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Diet and cancer

The way we eat has a direct influence on the development of certain types of cancer. In the industrialized world, where the rates are highest and where cancer is responsible for about one quarter of all deaths, some studies have blamed dietary factors for 30–40% of cancer cases in men and for as much as 60% in women.

What is dangerous, and what isn't?

The regular consumption of large quantities of alcohol is implicated in such cancers as those of the mouth, pharynx, oesophagus and upper larynx, as well as the liver. Women who are overweight as a result of enjoying an over-rich diet risk getting cancer of the endometrium (the mucous membrane of the uterus), or breast cancer after the menopause.

Stomach cancer has been linked to foods that have been smoked or preserved in salt, which may lead to the long-term formation of nitrosamines, chemical substances that increase the risk for cancer. They act together with an insufficient consumption of fruits and fresh vegetables, which slow down the formation of nitrosamines. In places where methods of keeping food fresh have greatly improved, particularly by refrigeration, we have seen a considerable decline in stomach cancer over the last 50 years. But it would be wrong to cut out certain foods on the grounds that they might be carcinogens. What really matters is a balanced diet.

As epidemiological studies seem to show—and this is confirmed by experiments with animals—a high consumption of fats, particularly the saturated fats of animal origin, increases the risk of cancer of the large bowel, prostate, and breast.

Breast cancer offers an interesting example. It is very frequent in the USA and quite rare in Japan, so doctors thought at first it might be of genetic origin. But it was found that the mortality rate from breast cancer in Japanese women who had migrated to the USA was just the same as among American women. This type of cancer has been linked to life-styles and very probably to a diet high in fats, as is the case in the adoptive countries of immigrants. But this factor acts in association with others, such as a high calorie intake and obesity.

Certain factors that are linked to life-style, such as deferring childbearing to a much later age or not having a child at all, increase the risks of breast cancer.

Elements that protect us

Our present knowledge does not yet allow us to say precisely how big a role the dietary factors play in the appearance of cancer, but we do know that modifying certain dietary habits can reduce the risks.

Everything leads us to believe that a diet that is low in fats (particularly saturated fats) alcohol, smoked foods and foods preserved in salt or vinegar, but is rich in vegetable foods, especially green and yellow vegetables and fruit, including citrus fruits, can help to lower considerably the risk of several major types of cancer that occur today, particularly cancers of the large bowel, prostate, stomach, lungs, and oesophagus.

C.V.

WHO/M. Vallencia

Not all change is good

by Abdulrahman O. Musaiger

Changes in eating habits and life-styles have had a great impact on the health status of communities in both developed and developing countries during the past 30 years. Urbanization has created social and economic pressure inducing people in developing countries to adopt diets similar to those in affluent societies. Foods rich in fibre and low in fat have been replaced by ones high in carbohydrates and animal fat. The amount of energy taken in with food has therefore increased, yet physical exercise has declined.

Immigrants may also influence eating habits. Thus Chinese foods are very popular in various parts of the USA. The eating habits of people in south-east Asia show both Chinese and Indian influences. In the Gulf countries, people from the Indian subcontinent have a considerable effect on eating habits: spices are much used in cooking and Indian dishes are commonly enjoyed by the indigenous people.

Economic development

With changes in human culture and technology come changes in food production, processing and storage. Improvements in transportation and distribution systems have increased the quantity and quality of food on the market. Supermarkets have become the principal outlets for food in urban societies all over the world. The opportunities for domestic food production in urban areas are limited and supplies of traditional food crops are scarce. Consequently, people become highly dependent on imported and processed foods. In many societies, especially among the young generation, traditional foods tend to be regarded as outdated.

Changes in life-styles, in particular the need to observe working hours in businesses and elsewhere, have affected food consumption patterns. In Western societies and some developing countries, lunch is declining in importance, with less meat and potatoes, and more eggs and cheese being eaten at this meal than formerly. The evening meal is often the main one. This is not the case in many Middle Eastern countries where work generally ends at about two o'clock in the afternoon; a heavy lunch is then taken, and a siesta commonly follows. The evening meal or supper is less important and is usually eaten outside the home.

Economic development over the past two decades has resulted in an overall increase in purchasing power and has brought about changes in dietary habits. This was particularly marked in the Gulf countries during the oil boom of 1970–80. Western civilization has penetrated every home in these countries. Many people have left traditional occupations in agriculture and fishing to work in the oil industry. As a result, family incomes have increased sharply and many households now have more than one source of income. Abundant and diverse food supplies have become available and eating habits have become more varied. Generally, the traditional diet of dates, bread and fish has been replaced by one of meat, chicken, eggs and other high-energy foods.

Women: unfair hardships, vital roles

In some societies women are considered inferior to men and are not allowed to eat until the men and boys have finished their meals. The food presented to men may be superior in quality and quantity to that allowed to

Although their physiological needs are greater, women and very small children do not always have equal rights to the best food.

WHO/Zafar

A family meal: eating together creates family ties and ensures a balanced diet.

women and, usually, children under seven. Under such circumstances the probability is reduced of mothers and children getting their recommended daily intakes and there may even be malnutrition among these vulnerable groups.

Nevertheless, women have a major influence on eating habits in any culture. All over the world, women take care of children and are responsible for the preparation of food for their families. The migration of young people to urban areas and sometimes beyond national boundaries in order to secure improved pay has increased the burden on women, especially in rural areas. Their agricultural responsibilities may include the production of cash crops in addition to the traditional food crops. This can be clearly seen in many African and Asian countries. In India, Pakistan, the Philippines, Sri Lanka, and Yemen, substantial numbers of male workers have gone to work in the Middle East and in Western countries, leaving home management entirely in the hands of their wives.

Meanwhile, owing to economic pressure and social change, more and more women have entered paid employment. In the West this trend began during the two world wars when many women had to take over men's jobs. In most developing countries, similar change has become apparent during the last decade. Consequently, women have had less time to prepare meals and have turned to convenience foods. Even where these are not used, meals have tended to become simple and easy to prepare. However, in some cultures in both developed and developing countries, working mothers have resorted increasingly to housemaids for child care and food preparation; housemaids usually have a different cultural background to that of their employers and introduce new eating practices to the households in which they work.

Fast foods have become established in most developing countries. Many people have busy schedules and spend more time away from home than formerly, and consequently they eat

Mother's milk

Ever since the world itself was young, newborn babies have sought their mother's breast for the milk it contains, because this enables them to grow and develop. In fact, most babies need no other food or drink during the first four to six months of life. Nourished at the breast, they gain weight completely naturally and receive precisely the right concentrations of protein, fat, lactose, vitamins, minerals and trace elements that are needed for harmonious growth.

But these are not the only virtues of this marvellous food that nature has created. Mother's milk protects babies from a great many of the infections that threaten them, and it is also the well-spring of powerful affective ties between them and their mothers from which they derive emotional balance and assurance. In addition, breast-feeding can protect women from breast cancer in later life and it contributes to birth-spacing, thus allowing the mother to have more time for her family and herself.

In principle every woman can breast-feed her baby, and she should be strongly encouraged and helped to do so, by her family, the community in which she lives and the health services. An ideal approach is to feed the child exclusively on breast milk during the first four to six months of life, then to give progressively more of the same foods that the family eat at table in addition to mother's milk. A woman can perfectly well let her baby benefit from her milk for one year or even two if she wishes.

The child will thus have plenty of time to get used to the family's food without having to suffer the psychological shock of sudden weaning. The child will also be at much less risk of contracting infections that threaten all babies when they come into contact with an environment that can never be germ-free; a high proportion of the cases of fatal diarrhoea and of serious malnutrition that affect children in some parts of the world are due to artificial milk feeds. These are incapable of protecting the infant from infections, and may even encourage them if the powder is diluted with water that has not been sterilized or if the bottle and teat are not clean. For millions of women who live in the world's poverty zones, it is difficult if not impossible to use clean water and to keep to the correct dosage for preparing a bottle-feed.

For many years, WHO and other international agencies, particularly UNICEF, have been at pains to urge governments and all who are dedicated to infant health to protect the tradition of breast-feeding wherever it is the pattern, and to re-introduce it wherever it has unfortunately been replaced by a "bottle-feeding culture".

Maternity services and all their personnel have a very important role to play in this respect. It was for their benefit that WHO and UNICEF drew up a "joint statement" proposing a whole series of practical steps aimed at encouraging breast-feeding and supporting mothers and families in this important health measure. First published in 1989, this booklet will soon be available in 27 languages.

Besides this publication, a recent supplement of the *Bulletin of the World Health Organization* was devoted to the physiological basis of infant feeding. It appeared in 1990 in English with summaries in French. Translations in Arabic, Farsi, French, German, Serbo-Croatian and Spanish are in course of preparation.

C.V.

when the opportunity arises. Fast-food restaurants are springing up rapidly in urban areas and are especially frequented by young people. The foods served, which often replaced traditional dishes that take a long time to prepare, are high in fat, salt and cholesterol.

The persuaders

The influence of the mass media on dietary habits has been widely documented. In many developing countries, television occupies much leisure time because there are few other recreational facilities. Televised advertisements have induced significant changes in food preparation and consumption patterns. Thus, breast-feeding has declined in favour of bottle-feeding, and fresh juice tends to be replaced with processed soft drinks. Unfortunately, the most aggressively promoted foods are of relatively poor nutritional quality.

Women exert an important influence on dietary habits. Everywhere in the world, it is principally they who prepare, cook and serve the food.

However, there are still many societies in which traditional foods have not disappeared. This is true, for example, in India, where, despite many centuries of outside cultural influences, traditional diets remain unchanged, although new eating habits have been introduced. Detailed studies on the reasons for the persistence of some traditional foods and dietary habits are scarce. Deep-rooted social values, taboos and religious beliefs are undoubtedly important in this connection. The maintenance of traditional eating habits is probably an important part of preserving a community's identity and feelings of security. Traditional foods are notably prominent on social occasions such as weddings and religious festivals. A good example is Ramadan, during which the great majority of Muslims confine themselves to traditional dishes that are not prepared at other times of the year.

In every religion there are regulations and beliefs concerning food. For example, the flesh of swine is forbidden to Muslims and Jews. Strict Hindus and Buddhists are vegetarians, while Seventh-Day Adventists are lactovegetarians, consuming milk, cheese, eggs, nuts and cereals, in addition to vegetable produce, but no meat.

Taboos make a considerable impact, although there is no scientific basis for most of them. In one ethnic group in Nigeria, coconut milk is not given to children since it is believed to diminish their intelligence. In Bahrain, water and other liquids are forbidden to lactating mothers during the first week after delivery as it is considered that liquids increase blood losses and delay the healing of the vagina. Surprisingly, even educated mothers commonly believe this to be so.

In general, dietary habits in developing countries have become westernized to some degree. The consumption of fat and sugar has risen steadily, while the intake of fibre and complex carbohydrates has declined. Traditional foods, some of them nutritionally important, have tended to disappear from the table. These changes, together with the adoption of sedentary life-styles by many people, account for much of the increase in chronic disease. Hypertension, heart disease, obesity, dental caries and some cancers are already major problems in many countries of Africa, Asia and Latin America.

An effort should therefore be made to raise the awareness of people on how to protect themselves against chronic disease, by modifying their eating habits and increasing their physical exercise. For people on low incomes and those living in remote areas, special attention should be given to promoting traditional foods of significant nutritional value. ■

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WHO/V. Abramov

Fat animals - fat humans

by Michael A. Crawford

The accepted wisdom on animal agriculture is that it is there to produce protein. So it may come as a surprise to learn that beef, lamb, poultry and pork provide consumers in northern Europe and America with more fat than protein. Not just *more* but *several times more*!

The starting point of our present domestic animal is the wild or free-living creature, and that did indeed provide more protein than fat. What went wrong to produce such a distorted product? The answer lies in the history of the modern meat animal.

Animals reared for meat give us less protein and more fat, particularly saturated fats that are decidedly not good for our health. Once considered as the key to a good diet, meat needs to play only a modest part in a country's food stocks—or in those of the supermarkets.

The natural foodstuff of the ancestor to our domestic cattle was soft bushy, leafy material—the lower branches of trees, sedges, herbs and grasses—which included leaves, flowers and seeds. The rumen bacteria and protozoa digest the cellulose and are themselves digested in the true stomach. The oil-rich seeds, often small like clover seeds, float through the rumen to have their protected essential fats extracted by the bile salts and again absorbed in the small intestine.

WHO/E. Mandelmann

Paintings of cattle done in the seventeenth to nineteenth centuries show livestock in very much this kind of semi-wild environment. Pigs were forest or bush animals that delighted in the roots, tubers, nuts and seeds to supplement the green vegetation. In the autumn, the oil-rich oak and beech nuts fell to the ground, providing the fat for the winter. Historians studying the Domesday Book which recorded life in 11th century England calculate how many pigs could have been on a farm by counting the oak trees.

Charles Darwin provided incidental confirmation over a century ago when he discussed the evolution of the long-necked giraffe. He asks the reader to look at a field of cattle where he would see the lower branches of the trees had been "planed to an exact height" where the heads of the cattle can reach. That vegetation mix of trees, bushes, herbs and grasses contrasts starkly with the present use of open fields and electric fences.

WHO/E. Mandelmann

Eat too much fatty food and you will inevitably become overweight.

The first rot set in during the 17th century, when progressive farmers began to enclose animals in fields for better management. This meant that the decision on what the animal ate was taken from it at a stroke. Man decided it would eat what was in that field. The animal had no say. Where there were hedgerows they were eaten. The response was to replace them by thorn bushes, walls and now electric fences. Where there were trees, their lower branches were eaten. In hard winters the bark too was eaten by desperate animals. The life of the tree depended on the desperation of the animals.

The second move was "intensification". A paradox in animal management arose when the number of animals in a field was increased. Instead of doing worse as the food supply was shared out, they did better. The explanation of this paradox is simple. The natural diversity of the vegetation in the fields was gradually lost through pasture management which encouraged the grass. If grass is allowed to grow unchecked it produces tall stems with the seed heads at the top. The stems are rich in fibre but not in energy. The seeds are nevertheless rich in essential fatty acids and several key vitamins.

If on the other hand, the grass is kept cropped—whether mown or grazed—it pushes out young, fresh tips which are very rich in energy. Intensifying the number of animals keeps the grass in a permanent state of "high energy" throughout the growing season. The simultaneous reduction in the amount of exercise which resulted from the enclosure resulted in turn in reduced muscle development. The net result: fat deposition.

This high-energy diet plus low exercise regimen led to a third development. When the animals were sold in the market, the heavier they were the better the price. So the ones that put on weight fastest were chosen for breeding. Farmers fell into the trap of selecting genetically for the fat animal. This at first seemed not a bad idea, since people liked a bit of fat and it was useful for many purposes from boot polish to soap. At the same time they were also selecting animals that would tolerate the kind of food man gave them to eat.

Added to all this was the clever idea of castration to make the males quiet and to gain weight faster; but the weight was largely fat. From the Industrial Revolution onwards, people became technically competent at manufacturing feeds for animals. They modelled the energy balance on the high-energy spring grass. Hence the development of "high energy" feeds!

These tactics reached their peak in the more modern innovation of no-exercise stalls. Breeding sows were actually tied down so that their nipples were constantly available to the ravenous piglets—food went in one end and milk came out the other with no natural respite. Only recently has this practice been called into question by animal rights groups, one of which—"Chicken's Lib" has also highlighted the plight of battery hens and broiler chickens. Genetics, environment and food have been designed for fat gain.

We all know from experience that when anyone puts on weight rapidly, what he or she puts on is storage fat, and the same is true of animals. In "As you like it", Shakespeare's shepherd remarks how his sheep grow fat in the spring and lean in the winter; these seasonal variations are a necessary part of biology. Modern farming methods force animals to grow steadily fatter all the year long. They live on a perpetual spring diet, are kept warm in winter and get no exercise.

Offal as protein

Sadly, progress has narrowed the nutritional focus even further. The assumption was that farm animals needed protein. As consumers became more fussy, much of the offal became a waste product and was perceived as a further source of "protein" that could be fed to animals to assist weight gain. Even surplus beef fat was claimed to be highly efficient in promoting weight gain in broiler chickens. With the invention of more and more mechanical techniques to extract every scrap of tissue from hooves, lips, even eyelids, this alleged protein source became

more readily available. It came into its own in the early 1980s when the price of soya protein shot through the roof.

So what are the consequences in terms of food for ourselves? In the United Kingdom, the present meat consumption is about 3.9 million tons per year, which in energy terms is enough to fuel an oil-fired 1200 megawatt station for a year. A hundred years ago, people used candles of tallow—beef fat—to light their houses. Translated into candle power, the present animal production in the UK provides enough white fat for all families to throw away their electric light bulbs. What has happened is that we now eat the candles and, like the cows, get no exercise!

Let us look at the figures. A while ago, the UK Meat and Livestock Commission tried to persuade farmers to reduce carcass fat to 25%. Let us take that figure and compare it with the starting point of the wild animal. A carcass with 25% fat carries about 50% lean meat. Dr Ledger, working in East Africa, dissected over 220 animals from 16 different wild species and found that the average amount of fat was around 3–4%, and 75% of lean. At face value that alone represents a huge difference, but we are told animals are reared to produce protein. So what does this mean in terms of protein? To find out the amount of protein you have to allow for the fact that most of muscle is water.

Comparison of percentage proportion of lean and nutrients in the carcass of wild versus domestic beef animals.

	WILD	DOMESTIC
Percentage of lean meat in the carcass:	75%	50%
Percentage of protein and nutrients (after removal of water and other solids):	15%	10%
Amount of storage fat:	4%	25%

In other words, the wild species provides more than three times as much protein as fat, whereas in the domestic species the amount of fat is more than twice that of the protein! However, any one with a smattering of nutritional knowledge knows that you cannot compare protein and fat on the basis of weight because fat has more than twice the caloric value per unit weight.

Converting the protein and fat to calories for direct comparison illustrates how far we have come in developing the fat animal: the result is staggering!

Calories per 100 g carcass:

	WILD	DOMESTIC
From protein	60	40
From fat	36	225
Ratio fat/protein	0.6/1	5.6/1

One thing is certain: we cannot blame the animal, nor can one blame "meat" as the culprit for high fat diets or high saturated fat intakes. The fat of grazing animals is highly saturated and, if you make poultry and pig feeds with beef tallow, their fats will be saturated as well. However, that fat needs to be distinguished from the *structural fat* or *lipid* which is in true muscle or meat.

Fatty Acids

There are two types of fat in the body: (i) storage and (ii) structural. The storage fat is the source of energy. Structural fat requires essential fatty acids which are polyunsaturated and must be obtained from such foods as green leaves and seeds. The body needs them for membranes where there is high activity, such as in the kidneys and muscle and especially the retina and the brain. They also help to produce hormone-like substances called prostaglandins and leukotrienes that regulate reproduction and the immune and vascular systems.

The nature of these essential fatty acids and their links with early human development and health were discussed in the report from a joint FAO/WHO Expert Committee entitled "The role of dietary fats and oils in human nutrition" (FAO, 1978). This report was written by scientists; it is still accurate today and recommends an overhaul of animal husbandry for the above reasons because it produces too much fat, much of which is saturated.

A busy market in Marrakesh, Morocco. Fruits and vegetables are good for health.

WHO/P. Merchez

Harm to health

As long ago as 1968, research showed that wild animals not only have lean meat but the fatty acids in the meat are polyunsaturated. Thus, for five million years, human evolution was based on wild foods and therefore adapted to foods which were low in fat but rich in polyunsaturated fatty acids and the vitamins and trace elements that go with them. Only 150 generations have elapsed since we emerged from the Stone Age and perhaps five since the field enclosures and the industrial revolution when the changes started in earnest. The time scale is far too short for natural selection to address the issue; but if the changes are important to human health, we should be witnessing harmful health effects associated with them. And this is indeed the case.

Unfortunately, countries where this type of animal husbandry is practised will have difficulty in escaping from the rut of nutrition-related disease because so much of this type of saturated fat is recycled and used in so many different guises as food. So long as the public remains largely ignorant of the nature of the fats in foods, they cannot truly respond to the recommendations made by their departments of health or by WHO. Sadly, developing countries are already copying this unhealthy type of animal husbandry.

What is needed is a reappraisal of the principles of animal production and indeed of food production. The watchword should be not *weight gain* but *nutrient gain*. If plant and animal agriculture were reassessed on this one simple principle, the nonsensical emphasis on fat would be *corrected* and the benefits to human health would be predictably widespread without the need for a radical change to the human diet. ■

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WHO/ILO/J. Maillard

Saving sight in Nepal

by Chet Raj Pant

Nepal is one of the least developed countries in the world, with one of the poorest per capita incomes and one of the highest mortality rates. Two-thirds of the country is covered by high hills and mountains where the agricultural output is very low; 85% of the children in the country are undernourished, while 5% of this group are severely malnourished. There are many ethnic groups, speaking as many as 75 different dialects. Except for the Kathmandu valley, transport and communications are sparse (or nonexistent) and very difficult. All these factors combine to pose a great challenge to the development of Nepal and the delivery of basic health services.

In 1989, the health authorities launched the Vitamin A Child Survival Project (VACSP), a three-year prospective study covering 100 villages in seven districts of Nepal, where there was the highest prevalence of vitamin A deficiency and nutritional blindness. These villages were selected at random so that they would be comparable in terms of ethnic group composition, social and economic status, and nutritional status. Four different strategies were adopted to measure the relative health benefits and costs of alternative approaches aimed at reducing vitamin A deficiency among the children under ten years of age:

— 25 villages were chosen for dietary supplementation, through triannual (13 villages) and biannual (12 villages) vitamin A capsule distribution (200 000 I.U.) to all children between 6 months and 10 years of age.

— 25 villages were selected for improved basic primary health care services and semi-annual distribution of megadose vitamin A capsules to all children between 6 months and 10 years. The primary health care (PHC) package included biannual deworming and treatment of acute respiratory infections (ARI), diarrhoea, and promotion of immunization.

— 25 villages benefited from both nutritional education and PHC activities. The nutrition education helped mothers to understand the relationship between vitamin A intake and the health of their children. Messages encouraged them to increase vitamin A-rich foods and other nutritious foodstuffs in their daily diet.

— 25 villages served as controls and, during the annual survey, project personnel screened all children and treated those with symptoms of xerophthalmia, ARI, diarrhoea, and worm infection.

Growing up in Nepal. In a country where 85% of the children suffer from malnutrition, the health services face an uphill struggle.

Significant impact

The first three approaches were introduced to the communities by community health volunteers (CHVs) who form the most peripheral part of the government's health care delivery system, and who were initially trained, monitored, and supervised by the health post personnel.

All the interventions, except the symptomatic treatment group, proved to have a significant impact on reducing the prevalence of vitamin A deficiency and improving the health and growth of the children. Contrary to other studies conducted in past years, nutrition education showed significant results within a relatively short period of time. Why has nutrition education proved so successful in the context of rural Nepal?

The educational messages and materials were deliberately kept simple and straightforward so as to achieve the maximum benefit with the minimum expense. The pictorial messages were thoroughly pre-tested among various ethnic groups.

The CHVs invited mothers to attend regular meetings in all villages, although at first most of them were reluctant. But with constant contact and unwavering simple messages, they became more convinced and started participating. They learnt that the risk of blindness in their children could be reduced and their overall health status improved if they followed seven nutrition education messages. These messages drove home the importance of vitamin A to the health of children, signs of vitamin A deficiency, dietary sources of the vitamin, home gardens, and proper feeding practices for

infants and children. The mothers took an active part in the discussions, and felt free to speak frankly.

Mothers who could read found it much easier to understand and integrate these messages into their daily practices. They were more likely to have heard of vitamin A deficiency, to eat more during pregnancy, to believe that it is important for the child's weight to increase, and to weigh their children monthly. In villages where maternal literacy was as low as 6% and nearly a third of the CHVs could not read, it was not surprising that these CHVs found it hard to read the dosage of medicine, record the mothers' names, and use the manuals. Some mothers even questioned their validity as health care providers because they could not read or write. So a female adult literacy programme began in which more than 2000 mothers participated. After six months, nearly half were literate and eager to learn more. This year, 75 new centres are running classes and integrating messages about primary health care and nutrition, so that the mothers do not only learn to read and write but also become familiar with personal health care and child nutrition.

The nutrition education messages created a demand for more kitchen gardens; the CHVs supplied the mothers with seeds and they proudly showed their kitchen gardens to our project staff. Buying the inexpensive seeds for them made a vast difference to the success of the programme.

Deworming and treatment of ARI and diarrhoea proved attractive, because a sick-looking child with a big belly looked well and healthy after a course of deworming. Similar results could be seen among the children suffering from ARI and diarrhoea. These improvements gave credibility to the CHVs in the community; soon mothers became competent in noticing night blindness in their children and reporting them early to the health worker.

More green vegetables

One year into the study, a higher percentage of mothers from the nutrition education intervention (82.7%) said they believed that vitamin A was important to their child's health than mothers in the other three groups. They also fed their children greater amounts of dark green leafy vegetables and wild greens and herbs. The mothers' awareness of night blindness in these villages increased from 37.1% to more than 74%.

Blood samples from groups of vil-

Home gardens in Kiribati

The residents of a refugee camp in Indonesia were seen to be in better health than the people living in neighbouring villages, where boils and other skin complaints were common. This was because the camp's residents used regularly to mix their daily rice with dark green leafy vegetables rich in vitamin A, which they cultivated close to their homes.

From this observation was born, in 1985, a project in the mid-Pacific island republic of Kiribati. The object was to encourage every household on the island to cultivate its own garden. Sponsored by UNICEF and the Foundation for the Peoples of the South Pacific, the project was run by the Agriculture Department of Kiribati. It permitted the islanders to supplement their basic diet, consisting almost exclusively of rice, with a variety of vegetables and fruit which they had grown around their houses. As a result their health soon improved.

This project is based on the principle of the mixed garden where plants are allowed to grow much as they would in the wild, that is to say, with tall plants protecting the smaller ones, with fruit trees forming a natural fence against the wind and salt spray from the ocean, and with fruit, vegetables, and even flowers and spices growing in profusion, thus offering a variety of vitamins and nutritious elements needed for good health.

Despite the lush green of its palm trees, Kiribati is not the kind of paradise where everything grows without requiring any work; fresh water is scarce and the coral soil is rocky. So a new concept was called for to make the local ecology more cost-effective. In order to save time and work, the garden had to be as close as possible to the home and to a water source, and small enough to require only one or two cans for watering.

Owing to the poor soil, it is vital to make a compost heap and to keep it permanently ready. This means digging a hole and, because the coral soil is very porous, placing coconut shells at the bottom of the hole to retain the water. Care of the garden must be part of the daily routine.

As the overall goal of the project was to improve the diet, the people had to know that, if they planted pawpaws, this was because eating the ripe fruit would keep their eyes healthy. Everyone taking part in the project had to undergo a simple test. They had to name at least two plants containing vitamin A, to cultivate at least one of them, and to eat it every day. And they had to name two plants containing iron, to grow at least one, and to eat some of it once a week.

In order to make the project attractive—which was important for its success—the staff ran competitions and cooking demonstrations. Later the people with gardens formed a home gardening group to help each other and exchange their experiences. With the help of the project staff, they drew up some simple rules: water each plant around the stem, protect young plants from the sun, attach poles for climbing plants, keep the soil free from weeds and use the weeds for compost, and so on.

Then they moved on to the numerous ways of gathering vegetables and fruit and preserving the seeds in order to sow them later. Members of the group learnt that the redder a tomato is, the more nutritive elements it contains, and that if they harvested the Chinese cabbage leaf by leaf they would have fresh food for a long time.

WHO/C. Pedrazzi

A family occupation—gardening for health.

The project staff recorded their gardening efforts, often in the form of sketches. From these observations was born the manual by Carolyn Peduzzi, who initiated the project. This book, *Mixed gardens—gardening on a coral atoll: a guide for Kiribati*, was published in 1989 by UNICEF in the language of Kiribati and in English, and may be obtained from UNICEF, c/o UNDP, Private Mail Bag, Suva, Fiji.

C.V.

This account of the gardens of Kiribati is a summary of an article by Barbara Bochnovic which appeared in the August 1989 issue of *Vitamin A News Notes*, published by Helen Keller International, the U.S.-based charity working for the blind.

The following publications on home gardening may be obtained by writing to UNICEF, 3 United Nations Plaza, New York 10017, USA:

Gardening for food in the semi-arid tropics. A handbook for programme planners. A WHO/UNICEF Joint Nutrition Support Programme publication, UNICEF, 1985, 55p. US$ 7.00.

Dry season gardening for improving child nutrition, Paul Sommers, UNICEF, 1984, 49p. US$ 7.00.

The UNICEF home gardens handbook. For people promoting mixed gardening in the humid tropics, UNICEF, 1982, 56p. US$ 5.00.

lage children proved that those villages where the megadose vitamin A capsules were distributed showed the greatest average increase in serum vitamin A levels. Yet, there was a reduction in Bitot's spots (sign of vitamin A deficiency) in all of the villages, with only a slight reduction in those villages where symptomatic screening took place. This demonstrates the effectiveness of combined nutrition education and primary health care, even without the distribution of megadose vitamin A capsules.

After the first two years of the study, the greatest reduction in corneal eye signs occurred in the nutrition education villages. So although megadose capsules were not distributed there, the increase in the levels of vitamin A from the daily diet gave the children a constant and sufficient supply.

The combined "ingredients" of this project's nutrition programme contributed to its success. Regular mothers' meetings, PHC activities, inclusion of adult female literacy classes, development of appropriate pictorial messages, and finally the positive relationship between the mothers and the women CHVs all took place at the community level. Coordination of all these activities ensured that they supported each other, and in this way the entire nutrition education package was well received by the communities and had a powerful impact.

There was good backing too at government level. The Ministry of Education arranged adult literacy classes, the Ministry of Agriculture distributed seeds, and the Ministry of Health is currently planning a national vitamin A deficiency programme. With coordination, these ministries can work together to effectively combat the suffering caused by vitamin A deficiency. Wherever there is a literacy programme, nutrition and primary health education should also follow; wherever seeds are distributed to communities, there should be messages about the value of feeding vitamin A-rich vegetables to the children. With the ministries cooperating towards their common goal, the children of Nepal may be assured that vitamin A deficiency does not threaten either their vision or their life. ■

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WHO/J. Schytte

Diet in the cities

by Dinesh P. Sinha

Over the past century, there has been an unprecendented increase both in total urban population and in the proportion of total population living and working in the great cities. So when one thinks of urbanization, the first picture that comes to mind is that of thousands of people moving physically from the countryside to the cities in search of better economic opportunities and—having failed to make a success of it—ending up living in slums under insanitary conditions, eating a substandard diet and suffering from infectious diseases and malnutrition. This is true of many large cities throughout the world and the situation needs urgent attention.

But there is another side of the coin. Urbanization also means adopting urban life-styles. At least for a good proportion of those who are economically better off, such life-styles include abandoning traditional sound dietary habits, practised over many centuries, adopting more sedentary living conditions, drinking more alcohol and smoking cigarettes as status symbols of modern social life, and leading a stressful life as they are caught up in the whirlwind of economic achievements.

Traditional rural societies have mostly lived off their land. Thus their diets have depended largely on staple crops of cereals, fruits and vegetables. Urbanization brings together a large number of people within a confined area where each household is no longer dependent on its own produce. The food has to be brought in from where it is produced, which has implications for its processing, transport and storage; of necessity, it has become compact (occupying less storage space), more refined (needing less time in preparation) and energy dense. The diet of a city dweller, therefore, has increased in animal products, fats and sugars and has decreased in complex carbohydrates (staples, roots and tubers, pulses, nuts, fruits and vegetables). It also includes soft drinks, meat products, confectionery and convenience foods which are invariably rich in fats, refined sugar and salt.

Two dietary patterns

In the United Kingdom between 1870 and 1970, per capita consumption of fat increased from 75 grams per day to 145 and of sugar from 80 to 150. Over the same period per capita consumption of potatoes has decreased from 400 grams per day to 240, of wheat flour from 375 to 200 and of cereal crude fibre from 1 to 0.2. A peasant agriculturist society derives 60–75% of its energy from starch, 10–15% from protein, another 10–15% from fat and only about 5% from sugar. Modern affluent societies

In the slums of Dhaka, Bangladesh. Newly arrived in the big cities, migrants from the countryside live in squalor and have little or no chance of eating healthy foods.

in the cities, on the other hand, derive only 25–30% of energy from starch and another 10–12% from protein, but about 40% from fat and 20% from refined sugar. Those two distinct types of dietary patterns—peasant agriculturist and modern affluent—can be seen today in the rural population and the urban elite of the same country anywhere in the developing world.

Urbanization has also brought about more sedentary living conditions. Those who worked hard on agriculture in rural areas, having moved to the city, no longer need to work hard physically. They do not walk to work or market but instead use motorized transport. Mechanization and automation take away the hard physical work and the energy expenditure that goes along with it; it also leaves people with extra time, all too often spent in sitting in front of the television. There is, therefore, a progressive decline in total energy expenditure from physical activity.

Urban behaviour

The new city dwellers tend to have an excess of energy intake from alcohol. If you do not drink you are out of tune. Although not a dietary factor, cigarette smoking is a constant companion of alcohol in urban social behaviour and aggravates some of the health problems brought about by the changed dietary pattern. Many people react to the stress of city life by having more to eat and drink, especially foods that are energy dense or rich in calories. This further adds to the total caloric intake.

So urbanization has led to an increase in energy intake and a progressive decline in energy expenditure, contributing to a positive energy balance and storage of excess energy as fat. Even in the developing countries, the well-to-do urban population are obese compared to their relatives who did not migrate to urban centres and who still lead an economically comfortable life in the countryside. Nevertheless, people living in rural areas are also gradually and progressively adopting city life-styles. In the industrialized countries, there is hardly any difference between the diet of city dwellers and of people in the countryside.

Diet and disease

Anthropological studies indicate that the human species in almost all the 30 000 to 50 000 years of its social existence has survived on a low-fat and high-fibre diet, rich in vitamin C and micronutrients. The change to high-fat foods from animal sources and refined sugar, and the progressive decline in complex carbohydrates and fibres, dates back no more than 250 years. Research carried out over the past 50 years strongly suggests that these dietary changes, together with a more sedentary way of life, cigarette smoking and excessive use of alcohol are responsible for the high prevalence of morbidity and mortality due to chronic diseases such as high blood pressure, diabetes, coronary heart disease and stroke. Some epidemiologists estimate that 30–40% of cancers in men and up to 60% of cancers in women in the industrialized countries are attributable to diet.

In the developing countries of the Caribbean, as in many similar societies, urban life-styles and their related diseases have already assumed epidemic proportions. Besides the migration from the countryside to the towns,

WHO/UNICEF/S. Kotner

Street scene in Brazil. What are the chances of clinging to beneficial traditions when you are lost in the back streets of a great city?

rapid movement of the population between the Caribbean and the large cities of Canada, the USA and the United Kingdom has brought "urban" life-styles even to rural areas.

Countries of the English-speaking Caribbean can be classified as middle-income economies. Over the past 200 years they have changed from primarily plantation economies to a more or less peasant society, and then to the present-day heavy dependence on merchandise trade and export of services—agriculture, tourism, minerals and manufacturing. Life has become increasingly sedentary. In countries like Jamaica and Trinidad and Tobago, until as recently as the early 1940s, 78% and 62% respectively of the energy were derived from complex carbohydrates. Only 20% and 38% of energy came from fats and oils, food from animals and refined sugar. In the mid-1980s, within a span of 40 years, the contribution of complex carbohydrates had changed to 55% and 48%, while refined sugar, fats and oils and foods from animals had increased to 45% and 52% respectively. Up to 35% of adult males and 50% of adult females in the Caribbean are obese. Cardiovascular disease and cancers are the major killers of the adult population, and their rates are among the highest in the world. In the 1980s, a long-term study in Trinidad among people who have adopted city life-styles showed that the chronic disease pattern was similar to any "Western" urbanized society.

Life-style hazards

It is no exaggeration to say that the urban life-style which people have adopted for their personal comfort, enjoyment and well-being has been proved to be hazardous to life. Of course changes take place over time, but every change that disturbs the balanced state which confers healthful living ought to be compensated by a deliberate act to replace the beneficial effect which the particular change is eliminating. For example, a farmer gets enough exercise from his occupational work and does not need additional physical exercise. If his son becomes an office worker, thus doing very little physical work, he should find time to deliberately incorporate daily physical exercise in his life. Or, if he was accustomed to eating a variety of food items from his father's produce, he now has to make a deliberate attempt to buy and eat a mixed diet.

Urban life-styles do not necessarily have to be detrimental to the nutrition and health of people. With proper planning they could be adapted to help city dwellers to become healthier and more productive. ■

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NEWSPAGE

Editor: Philippe Stroot

World AIDS Day 1991

"Sharing the challenge" is the theme chosen for this year's World AIDS Day, 1 December, when attention will focus on the need for individuals, groups, communities and nations to work together towards the common goal of containing the AIDS pandemic.

WHO, which leads the global effort against AIDS, has long worked in partnership with ministries of health and with bilateral and nongovernmental organizations. It also works with other international organizations, especially the United Nations Development Programme (UNDP), the World Bank, the United Nations Children's Fund (UNICEF) and the United Nations Population Fund (UNFPA).

"No country can consider itself immune", says Dr Hiroshi Nakajima, Director-General of WHO, "and no country can combat the disease in isolation. Preventing the spread of HIV, caring for those affected, and minimizing the social and economic repercussions of the AIDS pandemic all require the strength that comes from partnership."

AIDS affects all sectors of society. It often strikes men and women in the prime of life who may be the only support of young children, those children will be orphaned by their death. The virus is mainly transmitted through sexual activity and through injecting illicit drugs. Social, cultural and legal barriers may make it difficult to ensure that uninfected people are informed about how to protect themselves. People infected with HIV are sometimes stigmatized and subject to discrimination.

World AIDS Day offers an opportunity for people around the world to join hands in the fight against AIDS. Contact your nearest health centre or hospital to find out what might be done in your community and how you can contribute by sharing the challenge. ■

The days are numbered for leprosy

WHO's Member States have called for the elimination of leprosy as a public health problem by the year 2000. The aim is to reduce the number of cases of leprosy to below one case per 10 000 population.

Eighty per cent of all registered leprosy patients live in just five countries: Brazil, India, Indonesia, Myanmar and Nigeria. Cases have been registered in 88 other countries.

The first step towards eliminating leprosy as a public health problem will be to ensure that all patients receive "multidrug therapy", in which two or three drugs are delivered in a combined attack on the leprosy bacillus. Such treatment can cure early infections within six months. The sign of early infection is easily detected as a pale, numb patch on the skin. Older infections can be cured in two to four years. Multidrug therapy has already reduced the number of registered patients worldwide from 5.4 million in 1986 to 3.7 million in 1990.

The second, equally important step will be to search actively for people with leprosy. Leprosy is not transmitted through casual contact, yet unjustified fear of the disease is widespread, and patients are often treated as outcasts. People with leprosy are therefore often reluctant to admit they have it. As a result they only come forward for treatment when the disease has resulted in deformities of hands and feet, and disfigurement of the face.

If we want to succeed in the fight against leprosy, each and every one of us must change our attitude. Rather than fear, we must feel concern! Rather than reject, we must encourage, help and support. ■

Leprosy is not transmitted through casual contact, yet patients are often treated as outcasts.

WHO

Better be tobacco-free!

For the fourth World No-Tobacco Day, celebrated on 31 May, WHO certainly chose a burning subject. With the slogan "Public places and transport: better be tobacco-free," the Day was guaranteed to stir up both interest and controversy around the world. This was particularly the case in Europe and North America, where anti-smoking campaigns have already started to bear fruit, and where nonsmokers are increasingly aware of their right to breathe unpolluted air in public places and on public transport.

The growing exasperation of passive smokers was reflected in unprecedented coverage of the Day by the news media. The written press, radio and television devoted plenty of space to the event, and particularly underlined the fact that it was no longer simply a matter of denying smokers the right to knowingly endanger their own health, but rather to protect the health of nonsmokers from the harmful consequences, now well established, of other people's tobacco smoke.

In an appeal to all smokers on World No-Tobacco Day, the Director-General of WHO, Dr Hiroshi Nakajima, declared: "If not for yourself, then stop smoking for the sake of those around you who, by your action, are more vulnerable to the threat of cancer and also cardiovascular and respiratory diseases." The Day sought in

particular to encourage governments, communities, groups and individuals to step up awareness of the need for tobacco-free public society. To judge by the impact of the Day on public opinion from its media coverage, this appeal seems to have made itself heard.

Over and above the question of individual awareness—an indispensable prerequisite if smokers are to change their behaviour—it is noteworthy that more and more countries are taking legal measures to protect the public from passive smoking. By the end of 1990, no fewer than 63 countries had passed laws to ban smoking in public places—16 more than in 1986. ■

Forum on health in Accra

Ministers of health will not be the only participants at an international forum highlighting health and development to be held in Accra from 4 to 6 December 1991. The multisectoral nature of the meeting ensures that they will be joined by ministers of agriculture, education, environment, finance, foreign affairs, interior and planning, as well as representatives of many concerned organizations. The forum, which is sponsored by the Ghanaian government and the World Health Organization, is on the theme: "Health: a conditionality for economic development? Breaking the cycle of poverty and inequity." Its aim is to find a new path for economic and social development in the 21st century, taking account of the vulnerable and the disadvantaged.

WHO/P. Almasy

Women are particularly vulnerable in developing countries.

Women are an integral part of the development process, yet paradoxically they are universally found to be among the most disadvantaged. Under present conditions, they cannot break out of the vicious circle of poverty and inequity. Many women still lack the necessary health care and educational possibilities that would prepare them to carry out their numerous roles effectively. They have poor or non-existent access to credit and other essential financial services which would help them in their economic activities, and they lack the appropriate technology which would go a long way towards alleviating their work burden and improving their quality of life. They are particularly vulnerable to economic hardship and are often the first to lose their jobs outside the home, yet within the home they are the ones who must make the little that is available go further.

What kind of development strategy can be devised to ensure that the poorest and most disadvantaged in any society will not only contribute to the development process, but also reap the economic and social benefits of their essential contribution? To try to answer this question, four major themes will be discussed: (1) defining the concept of vulnerability and examining which groups of society are most likely to be so described; (2) determining how to provide access to a range of financial services to support the economic development activities of those groups; (3) determining how to protect and improve the health status of the most vulnerable groups in the society, particularly women, when development policies and programmes are being formulated; (4) determining how to use functional literacy as an empowerment process so that the vulnerable groups may acquire the economic skills and knowledge they need to improve their health status and quality of life. ■

Newsbriefs

• **Prizes for research in community health.** *WHO's Regional Office for Africa is offering prizes for the best projects of research in community health during the academic year 1990-1991. There will be two kinds of awards. Thirty prizes of US$ 500 each will be awarded for work carried out by African students of medicine or of the health sciences; and 20 small subsidies to a maximum value of $1000 will be granted, each one permitting a student to carry out a research project in community health. Teaching institutions requiring further information about these prizes are invited to contact the WHO Representative in their country.*

• **Safe food for travellers.** *How can tourists or businessmen travelling abroad avoid illnesses caused by unsafe food and drink, and what should they do if they get diarrhoea? A handy guide issued jointly by WHO's programmes on Food Safety and on the Control of Diarrhoeal Disease suggests answers to these questions. For travellers, contaminated food and drink often pose a threat to health. This little folder sums up a number of simple guidelines which have often been stated but are too easily forgotten. For instance, it is much better to eat thoroughly cooked food that is still hot when served. Cooked food held at room temperature for several hours constitutes one of the greatest risks of foodborne illness. Public authorities, travel agencies, transport companies, banks, institutions and those interested in widely distributing the above-mentioned leaflet in English, French, German and Spanish can purchase it in packets of 50 (Swiss Francs 20/US Dollars 18) or in the form of a camera-ready copy (Swiss Francs 30/US Dollars 27) from Distribution and Sales, World Health Organization, 1211 Geneva 27, Switzerland. An Arabic version of the leaflet is also under preparation, and information about ordering this will be provided in a subsequent issue of this magazine.* ■

In the next issue

Malaria is more than ever a reality of today, affecting millions of people all over the world and imposing a heavy burden on the economies and health systems of many countries. The September–October issue of *World Health* will describe some of the challenges and exciting aspects of the battle against this disease.

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Mother and child in the Dogon area of Mali. A nation's future depends on the quality of the daily diet.

Printed in Great Britain by GreenShires Print Limited, Kettering, Northamptonshire, England